

# American Aviation

The Independent  
Voice of  
American Aeronautics

20¢

Year (24 Issues) \$3  
Three Years \$8

Vol. 6. No. 8.

SEPTEMBER 15, 1942

Published Twice a Month at Washington, D. C.



## Plant Workers Rush to Enlist; Patterson Acts to Stem Tide

### Second Front

**M**OST encouraging sign of the war is the growing demand for mass bombing of German industrial centers. Especially significant was the recent editorial treatment by Time of the possibilities of crippling the enemy by striking the home front.

The real second front in Europe is the second front of airpower. To dilute our efforts in any other direction is to stall off the decisive close of the war.

Most critics of airpower in this war to date point to Germany's failure to knock out England in the Nazi air blitz two years ago. But the best efforts Germany could put out at that time were mere dribbles compared to the all-out heavy bombing which we have seen demonstrated by the British over Cologne and other centers.

Germany did not prepare for mass bombings. England has. The United States can help. The job is there to be done, and we have implicit faith in those airmen who predict the crippling of Germany in direct ratio to the ability of Britain and the U. S. to pour destruction over vital industrial and transportation areas.

This thesis is well exploited by William B. Ziff in his new book, "The Coming Battle of Germany." No ten-million men armies are needed to defeat the Nazis. Air power intelli-

(Turn to page 24)

### CAB to Issue Decisions on Pending New Route Cases

**D**ECISIONS will be issued as soon as possible on all new route cases on which hearings have been held, the Civil Aeronautics Board announced Sept. 2. The announcement was predicted by AMERICAN AVIATION for Sept. 1.

On Dec. 12, 1941, CAB announced that no further action would be taken on new route applications, so that CAB and the airlines could devote their attention to war duties. The policy was to remain in effect for such period of time as appeared appropriate.

"The Board has now determined to carry to decision these proceedings in which the hearings have been completed, and its staff has been instructed to confer with the parties and arrange for assignment of dates for the various steps which

remain to be completed," CAB's Sept. 2 announcement said. "At the same time, it has been decided to assign hearings and proceed to disposition of applications to include additional stops on existing routes, where no controversial issues are involved.

"Certificates issued will contain a proviso that the service authorized may not be inaugurated until national defense requirements have been met.

"Pending or new applications involving special considerations of national interest will continue to be handled on a temporary basis and, with rate cases, will be given precedence over other proceedings.

"The policy as announced on Dec. 12 will remain in effect for all other cases until such time as the circumstances referred to make further relaxation of the restrictions appropriate."

### Confusion Over Draft Prospects Causes Exodus

By JAMES STRAIGHT  
West Coast Editor

**P**UBLICITY and widespread misconceptions about draft prospects caused a doubling of enlistments in the armed services by West Coast aircraft workers in late August and early September. Appalled by the sudden loss of thousands of highly skilled men, both prime manufacturers and aircraft parts plants opened a barrage of telegrams seeking clarification from high Washington officials.

They were rewarded on Sept. 4 with a telegram from War Undersecretary Robert Patterson which was expected to help stem the tide that was seriously threatening America's war-plane program. That telegram, addressed to the Aircraft War Production Council, said in part:

"These moves are motivated by the highest patriotism, but in many instances such men could contribute more to the war effort and express their patriotism just as much by remaining at their present jobs to guard against disruptions to production caused by withdrawal from industry of persons in highly critical positions."

(Turn to page 20)

### What's Inside

- Promotion of Air Officers Speeded .. Page 3
- CAB to Study War Airline Needs .. Page 32
- Pilots, Mechanics Needed—Randolph .. Page 4
- American Opens Mexican Route .... Page 34
- Officials Answer U. S. Plane Criticism .... Page 10
- Pan Am's Mail Pay Reduced ..... Page 36
- Arnold Praises American Aircraft .. Page 11
- Industry Output Hits 54 Billion ..... Page 44
- Foley Discusses Functional Design .. Page 26
- Lockheed Tax Case Heard ..... Page 48
- Air Express Marks 15th Anniversary .. Page 28
- And Regular Features

BLACKSBURG, VA.

# NOW Research can Predict



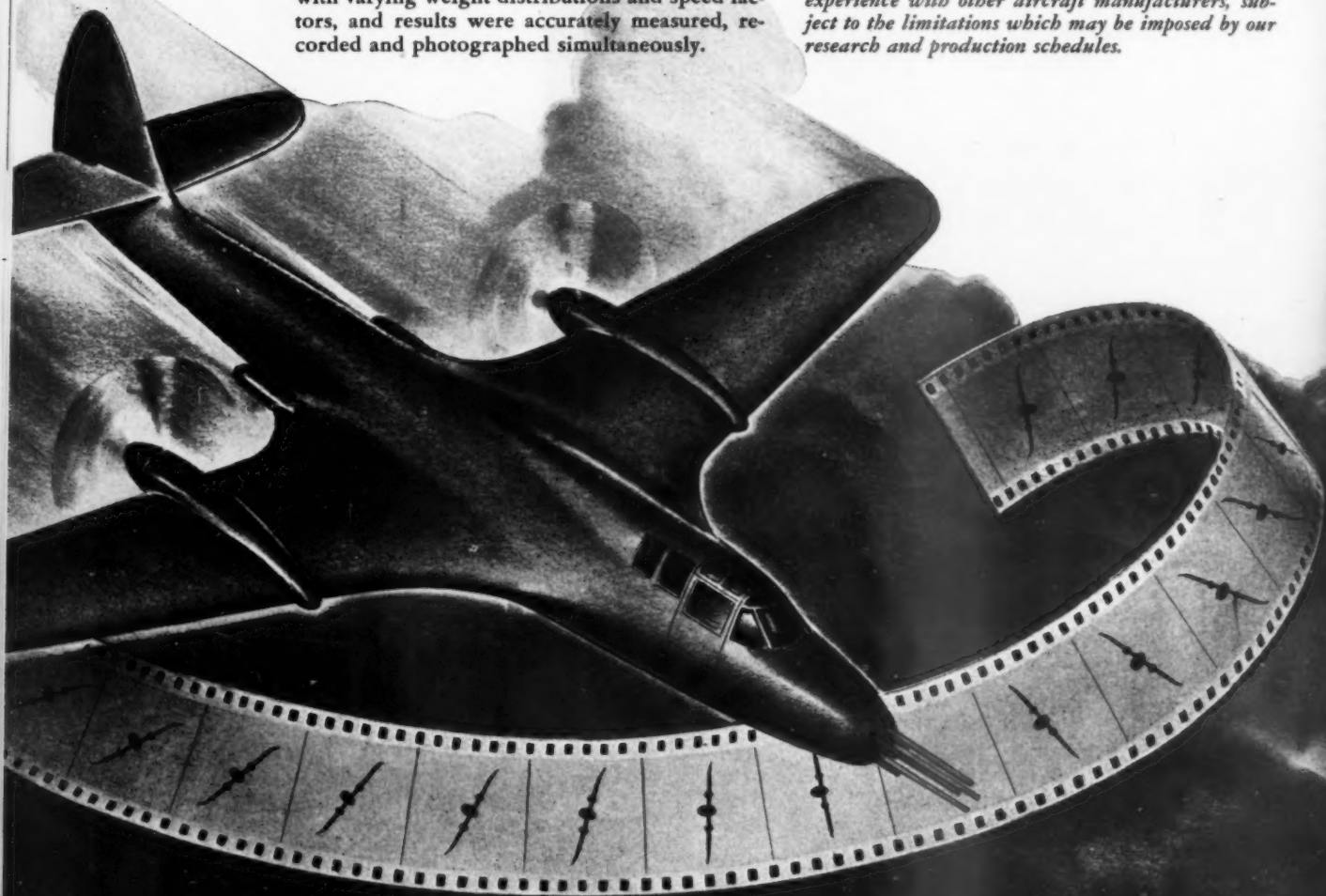
## ... WHAT FLUTTER MIGHT DESTROY!

Flutter isn't a new problem. Always present as a potential threat, its disintegrative power grew greater as aircraft speeds increased.

Research has achieved much in determining causes and cures of flutter. Recently, working on assignment for the U. S. Government, McDonnell engaged in a series of exhaustive tests. Using a technique new to aviation, the motion of an airplane wing during flutter was analyzed under controlled conditions simulating dynamic flight with varying weight distributions and speed factors, and results were accurately measured, recorded and photographed simultaneously.

As a result of this new technique it is now possible to see, record, and measure the flutter of wings and other airplane surfaces, simulating almost any conceivable condition which might be encountered in actual flight. Thus, the flutter characteristics of newly designed aircraft may be analyzed, and more accurately predicted prior to actual construction, thereby eliminating much costly full-scale experimentation and delay.

*As a further contribution to our country's war effort, we shall be glad to share our flutter research experience with other aircraft manufacturers, subject to the limitations which may be imposed by our research and production schedules.*



**MCDONNELL AIRCRAFT CORPORATION**  
SAINT LOUIS

S  
Is i  
Force,  
answe  
all th  
A  
AMR  
4, 192  
tional  
the A  
Congr  
Army  
until  
Arm  
1941  
Force.  
the A  
plies a  
establi  
An  
1942  
the A  
Army  
the se  
Corps  
the E  
Army  
tance v  
of the  
and th  
legislat  
sary to  
commis  
in the  
Corps  
to com  
mediate  
Air Fo  
Air Co  
Corps  
Army  
The  
even W  
up, wa  
order  
May 15  
their n  
AAF.

Ten T  
Consolid  
Consolid  
the B-24  
300 mile  
Ameri

## Legal Experts Say It's Air Corps

Is it the Army Air Forces, Air Force, or Air Corps? The official answer in Washington is "yes" to all three.

A qualified expert explains to AMERICAN AVIATION that on June 4, 1920, Congress amended the National Defense Act and established the Air Corps. Once established by Congress this air branch of the Army will remain an Air Corps until Congress takes action again.

Army Regulations issued in July 1941 formed a Headquarters Air Force. This Headquarters comprised the Air Corps, dealing with supplies and maintenance, and a newly established combat command.

An Executive Order in March 1942 ordered a reorganization of the Air Corps and established the Army Air Forces. The air arm of the service had been merely a Corps up until this time. However, the Executive Order placed the Army Air Forces at equal importance with the other two branches of the Army, the Ground Forces and the Services of Supply. Since legislation by Congress is necessary to permit air officers to be commissioned, paid and advanced in the Army Air Forces, the Air Corps remains as an activating body to commission. Officers are immediately assigned to the Army Air Forces, raised in rank in the Air Corps and paid by the Air Corps through the Congressional Army Appropriations Bill.

The general mix-up, which has even Washington high-ups mixed-up, was increased when an Army order was issued the middle of May 1942, for all officers to sign their names, John Doe, Lieutenant, AAF. This regulation lasted only

## Army, Navy Move to Speed Promotions of Air Officers

**F**INALLY moving to place air officers into higher ranks and into more responsible commands, both the Army and the Navy have announced revised promotion procedures.

The Navy's move, as announced belatedly by Secretary Knox on Sept. 2, would retire a number of officers over 58 from active command if found physically below par. At the same time, temporary promotions would be granted to fill the vacancies created by these retirements.

Secretary Knox said: "In view of the rapidly expanding aeronautical organization, it may be expected that temporary promotions of Naval aviators will occur at earlier dates than regular line officers."

According to Navy announcement, lists of air officers for temporary promotion have been prepared, based on the selective sys-

tem, and have been approved by the President. Promotions will be made from these lists "as the needs of the service require." These lists will be kept secret, however.

Almost simultaneously, the War Department announced new regulations requiring that pilot ratings must be held by men assigned to command of any Air Forces post, camp, station, depot, school or other command. Exceptions are made in air transport units or where the unit is equipped solely with liaison aircraft or gliders.

The Army order also clarified the status of officers entitled to flight pay (50% over base pay), by designating a flying officer "as one who has been granted rating as a pilot on service types of planes, or a rating as aircraft observer, or as any other member of a combat crew—including bombardier, navigator, photographer, radio operator and gunner."

one month when they were notified that the old signature, John Doe, Lieutenant AC, was the legal one. Now is it clear?

### 80 Graduated

Carl Hinshaw, U. S. Representative from the 12th Congressional District of California, presented graduation certificates to 80 U. S. Army enlisted men recently at Aero Industries Technical Institute, Los Angeles. This was the third class of aircraft and engine mechanics to complete their special training for service in the AAF.

### Generals Honored

To honor Orangeburg's two most distinguished soldiers, Maj. Gen. Johnson Hagood and Brig. Gen. John T. Kennedy, two auxiliary air fields used by Army Air Forces cadets at the Hawthorne School of Aeronautics have been named for them, according to an announcement made by Beverly Howard, president of the school. Both generals are native sons of Orangeburg, S. C. Hagood, an author of high repute, served in France as Chief of Supplies during World War I. Kennedy, at present commanding officer at Fort Bragg, has received the Congressional Medal of Honor for services in the Philippines.

## More Commissions for Navy Forecast

Chances for getting Navy commissions will be improved considerably if and when Congress passes a bill endorsed by the Department. Legislation is awaiting action by the House Naval Affairs Committee. In brief, the bill would relieve the government of paying retirement benefits on account of disabilities suffered by officers at the time of appointment but would not prevent retirement for any other disability which is an incident of the service. All officers of the Naval and Marine Corps Reserves heretofore appointed or hereafter accepted with physical waivers would be affected.

## Col. Chapman Heads Airborne Command

Col. Elbridge G. Chapman, Jr., Infantry, will command the Airborne Command with headquarters at Fort Bragg, N. C. Brig. Gen. William C. Lee, will command one of the new Airborne Divisions, the War Dept. announces.

The Airborne Command controls the training and development of airborne units. Since its organization in March of this year, the command has directed the development of tactical and training doctrine, and development and standardization of equipment.

Chapman served in France during World War I. Later he was Professor of Military Science and Tactics at Northwestern University and instructed at Fort Benning, Ga. He served four years in the Philippine Islands, returning to the U. S. in 1935.



**Ten Tons of Cargo:** Here is the new cargo version of the Consolidated B-24 four-engine bomber now in full-scale production in Consolidated's Texas plant. Incorporating all essential features of the B-24, the cargo plane will carry a payload of ten tons, fly over 300 miles an hour, and has a range of 4,000 miles. New features

are side windows and a solid nose, replacing the plexiglass nose of the B-24. These cargo planes will fly for the AAF Air Transport Command. Production in Texas is a month ahead of schedule. This version is equipped with turbo superchargers.



# Randolph Tells Nation It Faces Serious Pilot, Mechanic Shortage

## Congressman In Chain Broadcast Asks Army Why

**I**N AN ADDRESS directed squarely at the Army Air Forces, Rep. Jennings Randolph of West Virginia warned the nation in a coast-to-coast broadcast of the National Radio Forum on Sept. 9 that the country faces "a desperate shortage of both pilots and mechanics."

Quoting from the Sept 1 issue of *AMERICAN AVIATION*, the Congressman said that although the Randolph bill was passed by Congress several months ago for training of mechanics as part of CAA's pilot training program, nothing but talk has resulted.

*AMERICAN AVIATION DAILY* in a lead story Sept. 4 had reported that the entire outcome of plans for utilizing the hundreds of CAA contractors was still in the hands of the Air Forces, and that although CAA was ready to act, it was not free to do so until the military requirements had been laid before it. Only then could CAA make plans.

"With the airplanes coming off the assembly lines as fast as they are we should have trained and qualified pilots at every single factory in this country ready to fly every single ship to some further destination the minute the finishing touches are placed on it," Randolph declared. "That is not the case. The planes are waiting for the pilots to come back for them. That is only one phase of the shortage."

### Facilities Unused

"We are short of pilots because we are not training enough of them. We have the facilities but we are not using them. I'm talking about all types of pilots, the youngsters who will do the combat work and the less glamorous but equally important pilot who flies the transport and does the courier work, and other jobs such as artillery spotting, not to mention the highly important work of instructing. We're short on all counts."

The Congressman, one of the few men on Capitol Hill who can be depended upon to come to the aid of aviation, pointed out that his bill to train mechanics had passed Congress and become an act, but had received no attention from the Army.

"There apparently has not been

a definite step to follow it through and get started. It's there, a law of this land, but the military people haven't acted. I am not critical, but we must not delay longer. It's a laissez-faire that I do not understand at this time, particularly in view of the large advertisements you see that airplane mechanics are needed and needed now."

### Cadets Wait

"Pilot training is different. The civilian schools have been at that job for a few years and have done right well. Since 1939, when the program really got going, they have given flight training to more than 70,000 boys, nearly half of whom are now flying in the Army and Navy. Until last spring they were going into the Army and Navy at the rate of 1,000 a week. But last spring the Army decided not to avail itself of these facilities any longer, in so far as elementary training for its combat pilots was concerned. It decided to do all this work itself, even though it did not have the facilities, and boys who were already enlisted as cadets were waiting by the thousands to get started—somewhere between 50,000 and 80,000 of them."

"Meanwhile, as our air battles are commencing on a large scale over a wide front, replacements are becoming necessary. Hundreds of thousands of dollars worth of the most expensive kind of training equipment is idle while the men who own it are suffering. Last June the situation was so bad that on the floor of the House I asked for a Congressional investigation. I was assured that plans were afoot to

remedy the situation, that our civilians flying schools would be used and more men trained, but three months later the situation has not bettered one whit. It has become worse."

Stating that to learn "what is going on inside any industry, read the trade papers connected with that industry," the Congressman then quoted figures from the last issue of *AMERICAN AVIATION*, "one of the best aviation trade papers," to show that CPTP's system is being utilized at about one-fourth capacity.

"I ask in all seriousness of those men who are charged with providing air power for this country—What is the answer?"

### OWI Aviation Films

Indicative of the extent to which all Government agencies have eyes on aviation is the Office of War Information's release "A List of U. S. War Films" in which, of the films listed, approximately one-third touch directly or indirectly on aviation. Probably a large percentage of the five reels per month (60-72 films) to be released during the remainder of the year by OWI's Bureau of Motion Pictures, will touch on aviation in some manner, one of the Bureau's officials said. Best results of the war for industries will be visual education, the Bureau's officials also believe, not only because of rapid training of workers, but also because of morale-building for workers showing a result of coordinated effort.



International News Photo.

**Lancaster in Canada:** One of England's most formidable bombers, the Lancaster, has arrived in Canada and is shown over Montreal prior to landing at Dorval Airport there. With a bomb capacity of eight tons, a range of 3,000 miles and speed of over 300 miles an hour, the Lancaster has ten machine guns carried in four turrets in the nose, mid-upper, mid-under and tail. It will be demonstrated and then produced on Canada's assembly lines. Clyde Pangborn, U. S. pilot now with the RAF Ferry Command, flew it over.

## Berlin 'Hit Below Belt'—Seversky

The controversy between Don R. Berlin, General Motors aeronautical engineer, one of the P-40 designers, and Maj. Alexander P. de Seversky, continued late in August with the major having his round in the nation's press on Aug. 25, three days after Berlin accused Seversky of nursing a grudge because the Army did not adopt his design for a pursuit plane several years ago.

Asserting that Berlin was "hitting below the belt," and was dragging a national discussion of our most important weapon down to a "childish level," Seversky said:

"I have tried to focus public attention on importance of quality in military aviation. I have been unsparingly critical of military shortcomings in some of our planes, because it has long been my conviction that it will take an aroused public opinion to cut through lethargy and business-as-usual attitudes on this most vital matter."

"In particular, I have been trying to warn against the tendency to palm off deficiencies as special virtues. Carefully avoiding even the mention of the facts dealt with . . . Mr Berlin charges instead that my long fight for true air power represents only a personal 'peeve.' I had 'lost competitions' for Army business, says he . . .

"Every airman who dares to speak out has recognized that Dec. 7 found us with dismally backward pursuit aviation. Our fighter planes have been stymied at levels over three miles, when our Allies and enemies have operated effectively at five miles. Does Mr. Berlin really contend that this situation ought to be concealed from our people when the enemy knows it full well?"

"It is true that the Army master minds brushed aside my designs for longer ranges, greater firepower, heavier armor, higher operational ceilings. It is true that the prototype of the P-47, now belatedly advanced as the white hope of American fighter aircraft, was discarded when I pleaded for it years ago. In all these respects the war has justified my ideas. Should the fact that I was right seal my lips now, for fear the small-minded men might question my motives? Far from being bitter, I have every cause for satisfaction that the aeronautical concepts which I advanced have been recognized . . .

"Mr. Berlin indicates, rightly, that in the Army's selection of pursuit 'conditions had been clearly outlined in advance.' My quarrel is not with him, but those in high places who set such unrealistic conditions. The tragedy was that both he and I were forced by limited military minds to design planes for a 3-mile ceiling when all other nations were building them for 5-mile ceilings."

"We must recognize past errors and present shortcomings and stop this dangerous nonsense of saving face for firms and individuals who blundered, even if their motives were impeccable . . ."





# The Birdmen's Perch

**WE THOUGHT WE WERE** being pretty decent when we undertook to name our fluffy visitor.

It would take only a little of our time, we thought, and we'd be repaid by Oily Boid's gratitude when he



realized that he could go through life with an honest name instead of a number or a code.

*We figured wrong.*

The quilly quissing has bedeviled us constantly since we told him the Perch Pilots were going to name him, waking us at 5 A.M. to ask for mail. And we can't go places any more without being buttonholed while people explain why *their* name for Oily is the best name.

We're going to put an end to it next month. Good or bad, we're going to pick a name for our pheathered phobia.

Remember, the lad whose name we use gets a life-size portrait of the worm-eater.

**Major Al Williams**

alias, "Tattered Wing Tips,"  
Gulf Aviation Products Man-  
ager, Gulf Bldg., Pittsburgh, Pa.

## FLYING OVERCAST—1919 STYLE

Last week we saw a picture of a bomber that *was* the pride of our Army.

This lurching Liberator of 1919 looked like a well dressed warehouse. It had three wings, six motors, and eight wheels. And a speed of 85 mph!

But engineers devised new wing sections, bigger engines, and stronger undercarriages. They so improved design that much of the "ginger-bread" on the old-timer became unnecessary.

Today's bomber can fly rings around the buggy of 1919 because everything not vital to its performance has been dispensed with. Every ounce left is a working ounce.

A few years ago, Gulf men thought there was too much "gingerbread" in lubricants; too great a part of the oil was unnecessary to the job of lubrication. These research men devised a new refining procedure, the Alchlor Process, which was entirely different from old methods. This improved technique got more of the unnecessary "gingerbread"—the dangerous sludge makers and carbon formers—than had ever before been extracted from a lubricant. What remained of the oil did a better job.

Today's Gulfpride Oil does a better job of lubrication than old lubricants because everything not vital to its job of lubrication has been dispensed with. Every ounce of Gulfpride left is a working ounce.



HOW ABOUT SOME OF THAT GINGERBREAD?



## BRAINTWISTER

A mechanic cleaning engine parts had a 1 gal. can  $\frac{3}{4}$  full of cleaning-fluid and another 1 gal. can which was empty. He wanted to measure

out an exact  $\frac{1}{2}$  gal. of the cleaning fluid without using another can, getting more fluid, or pouring away any of the fluid he had. He did it, too. Can you?

## WHOPPER

Dear Major,

We want to join your family!

We recently opened a new airport in Ft. Worth and of course, are using Gulf Aviation Gasoline. We all en-



joy the Perch. This story may seem a little weird, but s'truth.

Right after we opened up here, our first solo student decided he hated the ground. He must have, because he made 17 passes at the runway on his first landing. I was worried because my watch told me the ship was out of gas.

Then I noticed that each time he overshot the field, the intake manifold on his ship reached out to the G.A.G. pump like an anteater's beak. When the ground-hater finally did come in, the ship's tanks were completely full.

Is this what pilots mean when they talk about thirsty engines?

*Yours very truly,*

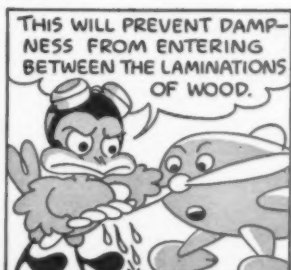
R. J. Coates, Jr.  
Instructor, Mid-West Airport, Inc.  
Ft. Worth, Texas

**Gulf Oil Corporation and Gulf Refining Company...makers of**

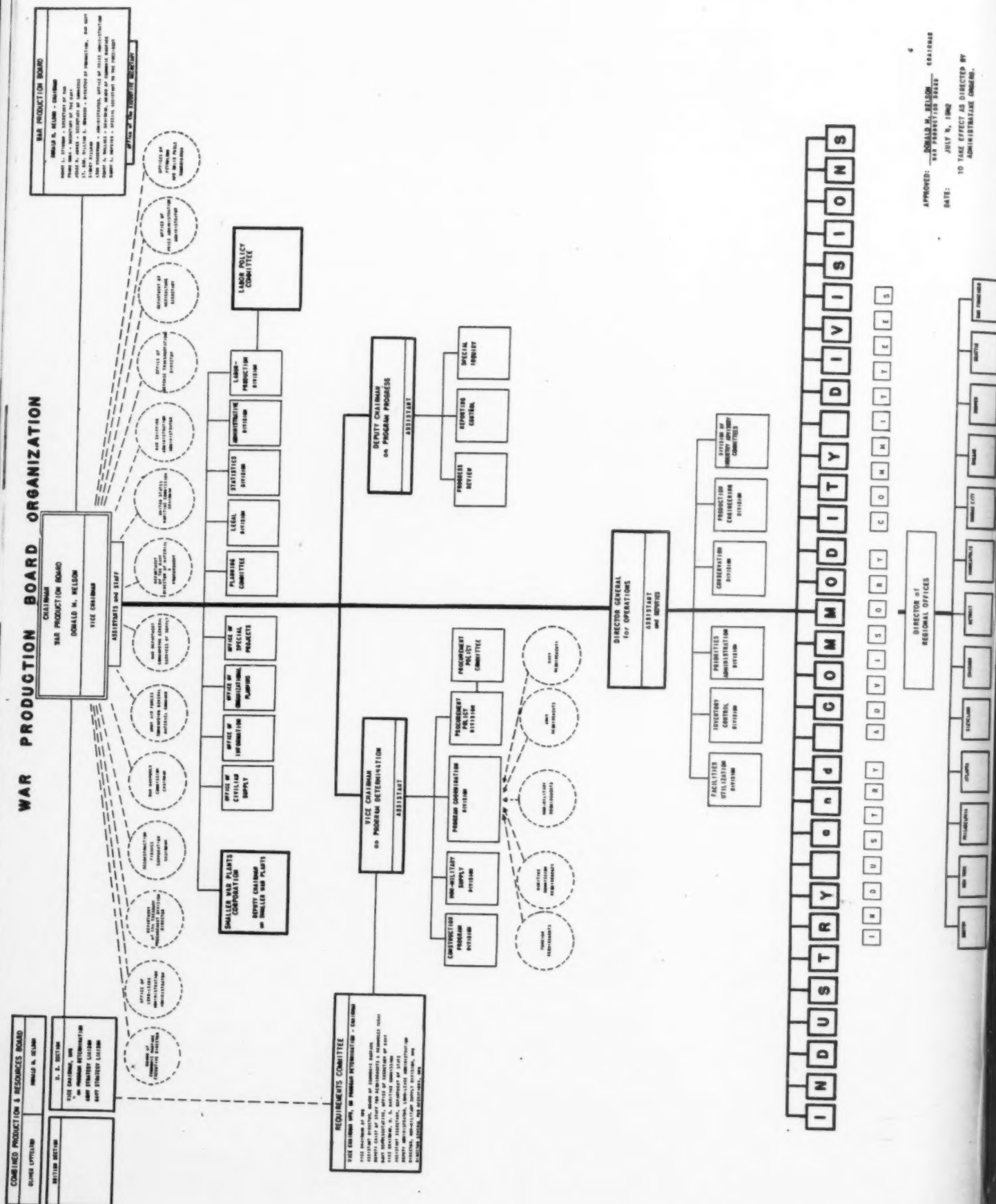


**GULF AVIATION PRODUCTS**

**OIL IS AMMUNITION—USE IS WISELY!**



**WAR PRODUCTION BOARD ORGANIZATION**



# **S**AFEGUARD *to the present...* GATEWAY *to the future*

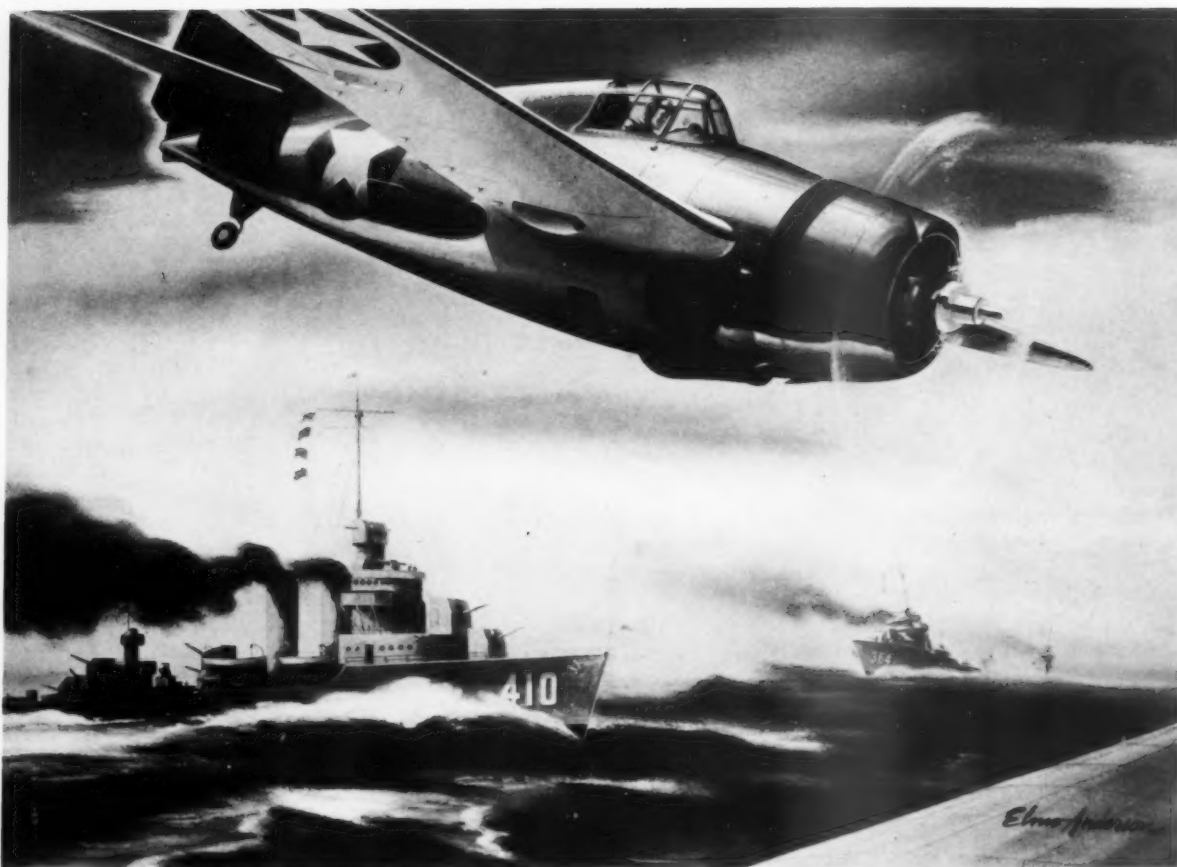
The time-vault, with its flawless mechanism, protects man's most valued material possessions. So also America's powerful precision-built aircraft engines are today safeguarding the values that will make the future secure. As the gateway to tomorrow opens, we see the tonnage loads of commerce going by air—world progress for which Wright provides the power.



**WRIGHT** *Whispering Engines*

POWER THE TONNAGE OF THE AIR





The Grumman F4F-3, fabricated with Boots Self-Locking Nuts

## THEY FLY WITH THEIR BOOTS ON

Somewhere in the vast Pacific another Wildcat wings home to its carrier base. Another job on the Japs has been carried out with dispatch.

This great Grumman fighter, F4F-3 has proven its worth in every battle of the Pacific. Every pound of its sleek structure must be considered in relation to its capacity for speed and stamina. For every pound must be fighting weight.

That's why Wildcats are held together by

Boots lighter, self-locking nuts. Not only do Boots weigh less than ordinary nuts, allowing many more pounds for fighting equipment, or fuel, but in addition, they actually "outlast the plane." They are also unaffected by the corrosive action of salt-water or by alternate subjection to dryness and moisture.

Boots one-piece, all-metal, self-locking nuts pass the rigid tests of the Army, Navy and Civil Aeronautics Authority.

# BOOTS

Self-Locking Nuts For Application In All Industries



Boots Anchor Nuts are made in a variety of shapes, plain, one lug—one rivet, corner, midget and special base. They are furnished with plain nut bases or counter-sunk for flush mounting. Write for new catalogue . . . Correspondence should be directed to General Offices, not to factories.

BOOTS AIRCRAFT NUT CORPORATION ★ GENERAL OFFICES, NEW CANAAN, CONNECTICUT

Wo  
Th  
utili  
ing  
years  
and  
nep  
Itsch  
recti  
neers  
gram  
Sir  
Marc  
to air  
dust  
by  
costir  
neers  
20 tu  
pared  
tain  
"Al  
in ar  
in e  
stabil  
areas  
is con  
ner s  
Tur  
varies  
acre,  
turf v  
around  
Col  
doubt  
eign  
Dr. M  
the U  
Section  
even  
the p  
for li  
The  
the  
work  
and C  
in the  
which  
growth  
Hep  
N  
Adm  
been  
eral E  
which  
Naval  
of sub  
and d  
Hep  
recent  
lic Re  
survey  
board  
for ad  
in this  
Majo  
Cal-Ae  
Flight  
Acader  
ported  
in tra  
183,544  
three  
with n  
either  
ing th  
1, 1942  
Ame

## War Speeds Turf Grass Development

The war has given impetus to utilization of turf for airplane landing areas, a development which for years has been studied by Japan and Germany but almost completely neglected in the U. S., Col. E. C. Itschner and Dr. John Monteith, directing the Army Corps of Engineers' augmented turf grass program report.

Since wide-publicity was given in March to statements that damage to airplane motors from preventable dust reduced the motors efficiency by 90% and required overhauls costing \$320,000, the Corps of Engineers has acquired approximately 20 turf experts on its staff, as compared with two formerly maintained.

"Although turf can only be used in areas conducive to growth, it is in every way preferable to soil stabilization for auxiliary landing areas and runway shoulders—and is considerably cheaper," Col. Itschner states.

Turfing by the Engineers' Corps varies in cost from \$25 to \$125 per acre, Dr. Monteith points out, while turf work done by CAA has ranged around \$400 per acre.

Col. Itschner predicts that "No doubt turfing will be used on foreign landing fields during this war." Dr. Monteith, formerly director of the U. S. Golf Association Green Section, predicts that there will be even greater utilization of turfing in the post-war era for landing areas for light planes.

The present turfing program of the Engineers' Corps—including work on both Air Forces' projects and CAA airports—is concentrated in the southeastern states and Texas, which have soil most conducive to growth.

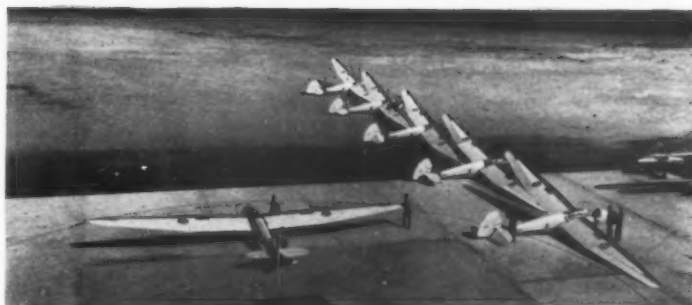
## Hepburn Named to Navy General Board

Admiral Arthur J. Hepburn has been named chairman of the General Board of the Navy, the board which studies and recommends Naval policy covering a wide range of subjects, including number, type and design of vessels and aircraft.

Hepburn is 64 and aside from his recent activities as director of Public Relations is best known for a survey made four years ago, by a board which he headed, of the need for additional Naval and air bases in this country and its territories.

### Moseley's Record

Major C. C. Moseley, president of Cal-Aero Academy, Mira Loma Flight Academy, and Polaris Flight Academy, in California, has reported that Army Air Force cadets in training rolled up an average of 183,544 seat hours of flying for the three schools per student fatality, with not a single flying fatality at either Mira Loma or Polaris during the period July 1, 1939 to Aug. 1, 1942.



**Gliders for Marines:** Six gliders lined up for takeoff on training flights at Page Field, Parris Island, S. C., where the Marines are taking extensive glider training. Each student must complete 1,000 successful takeoffs and landings during the six-week course. Photo from Office of War Information.



**In the Middle East:** This official British photo shows a U. S. Technical School for the R.A.F. in the Middle East formally handed over to the R.A.F. Here British instructors are trained in the maintenance of U. S. aircraft engines. Col. William H. Crom, C.O. of the school, handed over to Air Marshal R. M. Drummond, C.B., D.S.O., O.B.E., M.C., Deputy A.O.C. in charge of the Middle East Air Forces. Col. Crom, at left, shakes hands with Air Marshal Drummond. Between them is Major General Russell L. Maxwell, Chief of the U. S. North African Military Mission. Out of view behind Air Marshal Drummond is Air Vice Marshall G. C. Pirie, C.B., M.C., D.F.C.



**Notables in Conference:** P. W. Litchfield, left, Chairman of the board of Goodyear Tire & Rubber Co., discusses aviation problems with Merrill O. Meigs (center seated), director of airplane procurement for the War Production Board. Seated on right is Comdr. T. G. W. Settle, ranking lighter-than-aircraft officer in the Navy's Bureau of Aeronautics, and standing is Comdr. C. V. S. Knox, Naval Inspector stationed at Akron. Settle has held a number of altitude records.

## WAL Sister Sleepers Go on Leave to AAF

Western Air Lines personnel recently said farewell to the line's oldest planes, venerable twin Douglas sleepers, known on the dull books of the maintenance department simply as Nos. 101 and 102. The ships have been turned over to the Army to haul war materials.

Full tribute is paid the twins in the current issue of Western's Photo House organ "Speed," which presents a pictorial biography. The DSTs (or, as TWA used to insist on calling them, SDTs) were acquired by Western—then Western Air Express—in June and July, 1937. Since then each has flown 2,358,000 miles, each was in the air 14,000 hours, each consumed 1,304,554 gallons of gasoline and 17,000 gallons of oil. No. 101 had 28 motor changes, while her sister had 29. Each had 2 major overhauls, and each was responsible for an estimated 25,447,590 passenger miles.

"Western salutes 101 and 102," an anonymous writer says in a tone which must be nostalgic. "May you serve the armed forces as faithfully and as dependably as you served us in times of peace. And may you return from the wars unscathed, bearing the Army's traditional acknowledgment, 'Well done.'"

## Navy Tells How to Avoid Air Sickness

In a forthcoming number of the U. S. Naval Medical Bulletin, Lieut. T. T. Flaherty, of the Navy Medical Corps, proposes a six point program, for the prevention of air sickness based upon a 10-month study of flight cadets.

His instructions are: sit high, fasten the safety belt firmly, don't stare at the instrument board, focus your eyes on some point on the horizon, avoid executing the same aerobatic over and over, and never attempt a landing if extremely airsick.

The flight surgeon reported that he obtained satisfactory results with his method of treating an average of 18 students a month.

## Background

Two engineers with North American Aviation, Inc., were once associated with the army air forces of foreign countries, the company recently revealed. Edgar Schmued, chief design engineer, who designed the P-51 Mustang fighter, was born in Bavaria, of Austrian parents, and served on the technical staff of the Austrian Air service in the last war. He came to the U. S. in 1930 after five years in Brazil. Kenneth Bowen, production engineer at a branch plant, was born in Hull, Yorkshire, England, and held a commission with the R.A.F. of Great Britain. He was project engineer for the Mustang fighter.

# Top Airmen Reply to Criticism of Planes

## Jouett and Army Men Say No Ship Can Do All Jobs

By ROBERT H. WOOD

AS CERTAIN newspapers continued to devote front page prominence to foreign dispatches criticizing U. S. combat planes on the battlefronts, John J. McCloy, Assistant Secretary of War, Col. John Jouett, president of Aeronautical Chamber of Commerce, Capt. E. V. Rickenbacker, and Lieut. Gen. George Brett, former AAF Commander in Australia, released statements in the past fortnight telling the public what they could and need not believe in the babble.

Amidst the confusion the arrival of British aviation magazines brought in contrast words of praise for America's newest fighter which have seldom been paralleled by the staid and proud Englishmen.

Describing the first North American Mustang to reach England, a writer in the *Aeroplane* says it "has gained the approval of all and sundry," it "has a whole catalogue of other good points," its pilots "praise it so lavishly that they exhaust their superlatives before they have finished their eulogies," and its climb is "phenomenal." Its control is "excellent" and its Allison motor is rated by those who have flown other Allison "to be the best in the series now in service." Still not exhausted, the writer says the Mustang is "reliable and smooth, and gives the ground crews no headaches." A caption says it has "shown that it possesses all the essential qualities of the modern scout."

### Not in U. S. Press

But such glowing descriptions were not to be found in the U. S. press.

Most vociferous newspaper in the East was the New York *Herald Tribune*, which recently has devoted four editorials to telling Americans about the shortcomings of their aircraft. Aiming its barbs at the "official complacency" in the Army Air Forces, the *Herald Tribune* declared the public is "bitterly disappointed" over its fighters. "Honest mistakes in design policy can be forgiven . . . but what is unforgivable is any tendency to conceal facts under illusions or to cover up and continue mistakes that require correction."

The Washington *Post* complained editorially in similar vane, and the Aug. 31 issue of *Time* took more than a page to castigate Lieut. Gen. H. H. Arnold, AAF commanding general, for decisions made by the Air Forces in recent years and for what *Time* said was "an old Army

Well Above The Ack-Ack—So Far!



Washington Post

habit of selecting facts which made his whole picture look a little better than the plain truth." Arnold's statement is printed elsewhere in this issue of AMERICAN AVIATION.

Col. Jouett, pointing out that the B-17 and B-24 are being modified to provide "vastly greater bomb-carrying capacity," praised our heavy bombers.

"If you need a great many airplanes, you have to freeze production at some point as much as possible. When a bomber rolls off the line, we don't know whether it's going to be used in Egypt, Russia, England or New Caledonia. A plane can carry so much load. You can put that load into gasoline and fly 6000 miles, or into bombs and fly 100 miles. If you could build a bomber for one specific mission you could get the utmost in bomb load, but if you have to build for all types of conditions, you have to sacrifice somewhere. The American 4-engine bombers have been built for all conditions, and the record shows what they have done."

Comparing the Fortress to British bombers in over-Europe missions, Col. Jouett estimated that the American bomber "has 60 or 70 miles an hour speed on any of its British brothers."

Gen. Spaatz and Gen. Eaker, he said, are contending that they can carry on high-altitude bombing by day without fighter-plane support—"something the British haven't dared do because the difference in speed between their bombers and German pursuit aviation gives all the advantage to the Germans."

The American bombers have been given British fighter escorts, but this is said here to be due largely to the need of American fliers to become familiar with operations over the Continent before going deep into Germany.

Flying Fortresses, severely criticized a few weeks ago, now are drawing expressions of praise from British sources, he said. "The Fortresses have amazed the experts again," the air correspondent of the *Daily Mail* wrote, after the Utrecht and Rotterdam raids when the formation returned intact after downing 12 of the German fighters.

Rickenbacker said in San Francisco on Sept. 9. "We are turning out planes . . . at the rate of 4000

a month and we have only just begun. That is a plane every 10 minutes. Soon we'll be rolling them off at one every 4 minutes . . . But no one plane can do everything. Each plane is built for a specific job. The fastest plane may not necessarily be the best. Level speed is no more important than a plane's climbing speed. Other things being equal, a light plane can outclimb a heavy one. But a heavy one can out-dive a light one. The turbo-supercharger enables planes to go higher, yet a plane designed to fly at high altitudes is usually at a disadvantage in lower altitudes against planes designed to fly close to the ground. If you want to have a small gasoline load, to lessen your weight, you gain in maneuverability. But you shorten your range of effective action.

### Toughest Aloft

"Our air war plans, developed some years ago, called for bombers to destroy an enemy force before it reached our shores. We have never concentrated on fighters the way the British have. That is because our strategic situation was entirely different. But our fighters are the toughest things aloft. The only things that count are the hard-boiled facts."

Gen. Brett told a group in Philadelphia Sept. 7: "You can't build a perfect plane. We are not going to start building freak planes. We are not going to sacrifice a single item essential to safety in order to save weight. We aren't going to sacrifice essential armament to gain another 500 feet of altitude. Our bombers and fighters have a quality that assures performance the robots of dictatorship cannot match."

### McCloy Defends

Assistant Secretary McCloy, speaking before the Encampment of Veterans of Foreign Wars in Cincinnati on Sept. 1 made the following statement:

" . . . Today this country is alive as it has never been in our history to the significance of air power. Everywhere planes and the power of planes are the subject of discussion, and in spite of the fact that already our planes are fighting effectively all over the world, the cry has gone up through the land that our air program is no good. Every charge that our fighters can't fight and our bombers can't bomb is news. If I get away from Washington, or even in Washington, friends come up to me and say, 'what is this I hear about our planes not being any good?'

"All of our planes are not, in each category, the best planes in the world. One day we may reach that desirable position but no one can today maintain that only we have the best. In some respects, however, we do have the best but whether the line as a whole is going to prove out in combat, only prolonged combat experience will tell.

" . . . The criticism of our planes is leveled mainly against our fighter planes and our heavy bombers. I think everyone concedes that in the medium bomber field we are in a class by ourselves. At least, I have heard nothing but praise

of our medium bombers and I have heard no one suggest there were any better ones. As you know, it was a flight of our medium bombers that flew over Tokio.

"In the war with Japan, not including planes lost on the ground or by anti-aircraft, the total score from Feb. 1, 1942, to Aug. 30, 1942 (the period over which we have accurate reports) is Japanese planes destroyed by the Army in the air—234; American Army planes lost—109. That does not include damaged planes or the AVG record of General Chennault, which alone is: Jap planes destroyed—218, against the AVG's lost. These records are due mainly to the performance of P-40's. The figures I have quoted do not include the records of American-made planes fighting in other armies, such as the Russian and British. During August the P-39 came into action in the Southwest Pacific area. Of these, we lost 4 and the Japs lost 18 of their planes which engaged the 39's. We have no accounts yet of our other fighters in this area, such as the P-38's or the P-47's, but before very much longer we should be hearing from them. To show that we are not operating on a descending curve, the figures for the last week in August for all Army planes in all theaters are: 41 enemy planes destroyed, 26 probably destroyed, and 6 damaged—for a total of 73 casualties as against 1 American plane destroyed, 3 missing, 3 damaged—for a total of 7 casualties.

### Praises P-51

"The Zero can climb faster and maneuver better than our planes, but it is frailer, is unarmored, or is lightly armored and does not have leakproof tanks. The proof of the pudding is in the eating. The box score tells the story as to does the fact that our pilots in spite of some very just criticisms of the P-40's, I am told by all who return from the Southwest Pacific, would never think of swapping a P-40, with its armor and gas tank protection, for the Jap Zero. The truth is that the P-40 in its heavier-powered and armed models is a formidable fighter at lower altitudes. A more recent fighter, the P-51, is merely another development of the P-40. Some of these are already fighting with the British and you will begin to hear more and more of the 51—or the Mustang, as the British call it. It is a beautiful plane and performed brilliantly over Dieppe the other day. The 38's and 47's are high altitude, quick climbing planes, the latter only recently in solid production; the former has already been in action in Alaska to a limited extent and soon will be in action in other quarters.

"Much was made the other day of the fact that Spitfires had accompanied our bombers on their raids over France. Our pilots were reported to have said that the Spitfire was a better plane for the job than our own fighters, and here was the proof of it. Perhaps the new Spitfire will prove itself better in combat than anything we can produce. If so, more power to the British. The fact is, however, that the Spitfires were used to protect our bombers only because we had made a deal with England whereby we would get our bombers into action faster by using their excellent fighters as support pending the arrival of our own. When ours arrive and are properly coordinated with the bomber flights, we know we shall be able to make a much deeper sweep into the Continent with our fighter protection than the Spitfire can afford us. Our fighters will go just as high and we shall see how well they fight at the high altitudes. In tests

(Turn to page 14)



# Arnold Calls for Men; Praises U. S. Craft

## Replies to Wave Of Press Reports Panning Planes

LEUT. GEN. H. H. ARNOLD, Commanding General of the Army Air Forces, released the following statement at a press conference in Washington Aug. 15. Although some of the facts have been reported in the press, issuance by the Army makes the material official for the first time. Full text:

### Training

After eight months of this war we of the Army Air Forces find ourselves with a really tremendous training and recruiting program under way to meet the demands for trained air crews on every major war front in the world.

We need the continued cooperation and support of the American press and every other agency of public contact in the recruiting campaigns which we must carry on if we are to reach our ultimate goal of 2,000,000 men to keep 185,000 planes flying and fighting.

We need pilots for fighters and bombers. We need navigators, bombardiers and gunners. We need radio operators. We need many kinds of technicians for our ground crews and air crews. To get these men in sufficient numbers and in time, we need your assistance and the assistance of all Americans. Or, rather, we need your continued assistance, for we of the Air Forces know and sincerely appreciate the friendly cooperation we have enjoyed from the American press. It is a pleasure for me to take this opportunity to thank you personally for the support of the newspapers and news services you represent.

As I have said, we will need your continued cooperation. Fortunately, the pilot recruiting program, at least for the present, presents no great difficulties. The supply of bombardier and navigator candidates is increasing. We are now engaged in a drive for gunners to man the turrets of our hard-fighting bombers. We urgently need enlisted technicians of a number of kinds for our ground and air crews. We need radio operators and instructors. We need glider pilots.

It is becoming more and more difficult to find many of the kinds of technicians we need. It will become still more difficult as the war goes on. You can render a great service by giving us your continued support in these specialized recruiting efforts.

As a result of the training program which, very fortunately, began many months before the Japanese attack on Pearl Harbor plunged us into this war, we now find our airmen and airplanes in action in increasing strength on fronts all around the world. They are in successful action everywhere. I am glad to be able to report. The have won victories over every type of enemy aircraft.

There is ground for solid satisfaction in the record as it stands. Our airmen are proving themselves in actual combat, and I can tell you, without reservation, on the basis of the factual record of eight months of war, that the equipment our men are taking into war also is good. In fact, a great deal of it is better than good; it is superior in quality and performance.

But I would like to discuss with you primarily our training program, for this is the foundation of our aerial strength and the keystone to the successes we must achieve and will achieve over the enemy wherever he is encountered.

It is going to be necessary to draw to the utmost upon the reservoir of our finest young manhood to keep our warplanes in the forefront of this war. They must have the best and most complete training we can give them to carry the full weight of offensive action into the major war theaters to which we now have been committed.

### Plane Performance

American combat airplanes have met the test of modern war on battlefronts around the world and have performed with a high degree of efficiency even when opposed, as in most cases to date, by numerically superior enemy forces.

#### Curtiss P-40

The American-made fighter plane which has seen the greatest variety of aerial warfare is the Curtiss P-40.

The Curtiss P-40 airplanes, from the earliest P-40 to the latest and entirely different P-40F, have fought on every United Nations front before and since the entry of the United States into the war. These planes are known to the British as Tomahawks, Kittyhawks, and Warhawks, according to their position in the series.

Playing a new and unsuspected role in the Libyan Desert, Kittyhawks have recently taken a large part in the smashing British counter offensive which brought the Axis drive on Alexandria to a halt. The Kittyhawks, equipped with bomb-racks, have become "Kittybombers" and, as such, are being used both against Nazi tanks and mechanized ground equipment and against Nazi aircraft, with great success in both cases.

The Kittybomber, according to reports from Egypt, is fast enough to take on any fighter built, even with bombs in the racks. As bombers they are not as vulnerable as the Stukas, according to the Egyptian reports. The pilots are using their regular gun sights as bomb sights.

In one of their first forays as fighter-bombers, a formation of Kittyhawks flown by Australian pilots was attacked by a formation of ten Messerschmitts. The Kittybombers went into a twisting dogfight with bombs still in the racks, shot down two of the Messerschmitts, drove off the others, and then went on with the bombing attack.

Adding to the score of brilliant actions by P-40 fighters in the Middle East, a British Air Observer at Cairo has reported that on May 18, eight P-40's (Kittyhawks) and four British Beau-fighters intercepted twenty Ju-47's (transport planes), escorted by three German Messerschmitt Me-110 two-engine fighters. The P-40's accounted for seven of the transport planes and two of the Messerschmitts, according to the British observer, who reported the R.A.F. pilots fluent in praise of the P-40's.

Another report from the Middle East Command covering actions over a certain period by the P-40D Kittyhawks and the P-40 Tomahawks relates that in offensive patrol and bomber escort operations in the Libyan battle area, 690 sorties (A sortie is defined as one trip by one aircraft. Thus 100 fighter planes in a sweep are referred to as 100 sorties.) were undertaken by Kittyhawks and 173 by Tomahawks. In addition to attacking motor transport and military targets they destroyed German aircraft as follows: Ninety on the ground; nine

in the air, certain; two in the air, probable; ten in the air, damaged. British losses during this whole period were 16 aircraft destroyed and one damaged.

The early Tomahawks, now superseded by the later and better Kittyhawks and Warhawks, made impressive records on other fronts. A flight of twelve Tomahawks in the Near East encountered a mixed German and Italian force of more than sixty planes. Fighting at odds of better than five-to-one, they destroyed thirty-six of the enemy planes.

Belated firsthand accounts from the Leningrad front in Russia tell of the arrival there of American Tomahawks and their introduction to battle against the Luftwaffe. The first Tomahawk went out alone, with a Major Pilyutov, a fighter pilot, at the controls. He was attacked by six German Heinkels. Fighting against these odds, Major Pilyutov downed one Heinkel and drove off the others.

"The Tomahawks are making a good showing during the present spring season, too," it is reported in another Russian account received in this country. "On April 1 they bagged eight German planes on Leningrad front. On April 13, three Tomahawks, under command of Senior Lieutenant Zelenov, shot down five Fascist planes during one engagement. Since the day when Tomahawks first appeared on Leningrad front five flyers—Pilyutov, Pokryshev, Plotov, Zelenov and Fedorenko—shot down fifty German planes."

In individual encounters in the Southwest Pacific, early and less effective models of the P-40 have acquitted themselves splendidly. On February 9, a formation of 16 P-40's intercepted 25 Japanese heavy bombers escorted by two fighters over Soerabaja. They destroyed five bombers and one of the fighters. One American plane was shot down, but the pilot parachuted to safety.

In another encounter, seven Army P-40's encountered a formation of nine enemy bombers escorted by 14 Jap fighters. The Americans shot down one of the bombers and one of the fighters, damaged four other bombers and two fighters, and forced the entire formation to turn back; a decisive victory at odds of 7-to-23.

A communique from General Stilwell reports that 10 Jap Zeros were shot down by United States Army Air Forces fighters in the course of Japanese attacks on Hengyang on July 30 and 31. On July 30, 27 Zeros attacked Hengyang. They were met by American fighters which shot down four Japs without any loss to themselves. On the following day 35 Zeros repeated the attack. They were engaged by 13 P-40's and the American pilots shot down six Japanese planes, destruction of which was confirmed. It is believed that three others were shot down. No United States planes or pilots were lost in either of these engagements.

Brigadier General Claire L. Chennault, Commander of United States Army Air Forces in China, has been quoted in news reports from Chungking as declaring that the new Zeros, of which 15 have been shot down over Hengyang, "are far better than the old ones, but inferior to our planes, and it will take at least two years before the Japs are able to construct anything equaling our newest."

#### Bell Airacobra

Other American fighter planes which have revealed superior qualities in actual battle are the Bell P-39, or Air-

acobra, and the North American P-51, or Mustang.

These planes, like the P-40, are medium-altitude fighters. While designed for maximum effectiveness at altitudes of about three miles, they have been defeating enemy fighters and bombers up to a height of five miles far above the range for which they were intended.

A report from Russia has stated that a squadron of P-39's engaged and destroyed 73 German airplanes with the phenomenally small loss of only two planes. All types of German aircraft are reluctant to close with these fast, deadly, cannon-firing fighters, the report declared.

One battle report from the Southern Pacific relates that six P-39's flying at 8,000 feet saw eight Jap Zeros several thousand feet below. The Airacobras dove to the attack and one of them collided with a Zero, wrecking the top half of the rudder elevator and vertical fin of the Jap ship, which disappeared in a steep spiral, out of control. The P-39, which took the impact on its left wing, returned safely to station only slightly damaged.

On July 6 at Port Moresby, New Guinea, seven Jap Zeros attacked five P-39's. They broke off action rapidly after one Zero had been damaged, with no losses to the Airacobras.

There have been many encounters in the Southwest Pacific area between our fighters and the Japanese Zero fighters. Major General George H. Brett states that when our fighter pilots are asked if they would trade their P-39 and P-40's for the Japanese Zero, their answer is definitely and almost unanimously in the negative. Such a trade would mean giving up the protection of armor, leakproof gasoline tanks, and parachutes, they reply.

#### North American Mustang

Recently it was announced officially from London by the Royal Air Force that the new North American P-51 Mustang fighter, recently put into combat operation by the Army Cooperation Command, has given a splendid account of itself in action over the invasion coast. Until they are needed for close army support, the P-51's are being employed as Fighter Command aircraft by the R.A.F.

In one attack, a British pilot flew his Mustang through an enemy radar antenna between two pylons. Another pilot described the sturdiness of the Mustang as "wonderful" and said that some of them "have taken punishment which would have been too much for most fighters."

American-made fighter planes designed especially for high-altitude combat are now in service or are now being delivered to far-flung battle fronts, General Arnold declared, but reports on their performance are still too sketchy for public announcement.

#### Lockheed P-38

The Lockheed P-38, or Lightning, however, has already engaged the Japanese with notable success. The first battle action for the P-38 twin-engine interceptor fighter took place recently in an undisclosed theater. Two P-38's intercepted a K-97 four-engine Japanese flying boat and shot it down in flames. The P-38's later attacked a second ship of the same type which was shot down out of control and presumed to crash.

#### Republic P-47

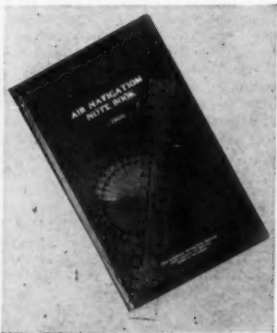
Another Army Air Forces high-altitude

(Turn to page 16)



**Explains:** Red Hulse, chief test pilot at the Columbus, O., plant of Curtiss-Wright Corp., explains the controls of a new Curtiss Hell-diver dive bomber to Lieut. R. B. Buchan, naval air hero of the Coral Sea battle.

## New Dead Reckoning Equipment For Defense of Land, Sea and Air



**AIR NAVIGATION TEXT** with Dept. of Commerce Navigation Plotter. Necessary for cross-country flights, and for Commercial and Instrument rating examinations. Difficult radius of action. Off-course and alternate airport problems plotted and solutions given in a simple understandable method similar to the text used in the U. S. Naval Academy but improved. Book size 14x8 1/2 in. handsome red leatherette with gold letters. Plotter contained in patent cover pocket. Combination only \$4.00 postpaid or C.O.D.

### OUTSTANDING NEW AVIATION DEFENSE BOOKS

**RADIO AND INSTRUMENT FLYING:** By Charles A. Zweng, Instructor, U. S. Air Corps. New 1941 Edition covering new important material. Written especially to prepare the pilot for government examination for "Instrument Rating." Radio-Telephone Permit included with Meteorology, Radio-Orientation, left-down, off-course and alternate airport problems. Only \$4.00, postpaid.

**FLIGHT INSTRUCTOR:** A new text covering the scope of the written examination for flight instructor rating. New authentic Multiple Choice questions with answers included. \$3.00 postpaid, or C.O.D.

**CELESTIAL NAVIGATION**—complete equipment consisting of, Air Navigation Note Book and Navigation Plotter, Simplified Celestial Navigation, Air Almanac, Line of Position Book, and Hynes Star Chart all 6 items only \$11.75 postpaid or C.O.D.

**AERONAUTICAL TRAINING:** New enlarged edition. For the first time shows separate sections containing Private Pilot and Commercial Pilot "Multiple Choice Examinations." Makes your government test easy. \$3.00 postpaid or C.O.D.

**GROUND INSTRUCTOR:** Written for the student preparing for "Ground Instructor Rating." Excellent for class work. Covers Navigation, Meteorology, Aircraft and Theory of Flight, Engines and Civil Air Regulations. \$3.00 postpaid or C.O.D.

**GROUND INSTRUCTOR RATING:** New edition contains "Multiple Choice" examinations on Navigation, Meteorology, Aircraft and Theory of Flight, Engines and CAR. Nomenclature and aviation dictionary in back of book. It's new and different. Something you cannot afford to be without. \$3.00 postpaid. Or it may be purchased in combination with "Ground Instructor" for \$5.00.

**AIRPLANE AND ENGINE MECHANICS:** Examinations. New authentic Quis Book now covers the new Multiple Choice examinations fully illustrated with necessary diagrams. Used by Lockheed, Douglas, Northrop, Ryan and outstanding schools. Why fail? Only \$3.00 for both examinations, and CAR.

**AIR NAVIGATION (Gold Medal Edition)** includes meteorology. \$5.00 postpaid.

**SIMPLIFIED CELESTIAL NAVIGATION** by P. V. H. Weems and E. A. Link, Jr. \$3.00 postpaid.

**DALTON MARK VII AIRCRAFT COMPUTER:** With book of instruction. . . \$7.50.

## PAN-AMERICAN NAVIGATION SERVICE

12021 Ventura Blvd. North Hollywood, Calif.

# War Agencies Review

THERE WAS A PERIOD of several weeks which should have ended with the President's Labor Day address and message to Congress, during which the materials situation was the only situation which was making much war production news. Important topics like wage stabilization, expanded price control, job freezing and others grew stale for want of new developments. There were no new developments simply because the men charged with working out these issues had carried things as far as they could until the Administration gave them a yardstick with which to measure and coordinate their actions. Lacking this yardstick there was little they could do beyond making inconclusive stabs at a few side issues.

It was generally hoped and expected that the President would sound the all-clear on Labor Day. On the basis of this hope and expectation, wage stabilization and price control officials hastened to settle their inter-agency differences and got set to swing into action.

These were disappointed men when questioned following the President's address. His action in passing responsibility back to Congress simply meant more delay. It meant the various issues were more inter-related than ever. It meant more obstacles and more opposition. It meant they still had no yardstick.

In their offices and over their phones they discussed what to do next. On aircraft wage stabilization and on aircraft price control, some wanted to go ahead and some wanted to wait. Some felt that a number of important wage inequalities could be worked out in advance of final action by Congress or the White House. Others felt it a wiser policy to wait until the whole matter could be tackled at the same time.

THE WAR MANPOWER COMMISSION, now six months old, is being freely criticized for having done virtually nothing, beyond putting out press releases, which has helped the manpower situation. People still are migrating from job to job, still are being drafted away from jobs or pirated into new jobs. An assortment of statements by Washington officials, often in contradiction of one another or of their own earlier statements, has caused many hundreds, probably many thousands of valuable war workers to doubt the security of their places to the extent of quitting to enlist.

WMC admittedly is in a tough spot. Forced to deal one way or another in cooperation with virtually every war agency in Washington, it has power over none of them. The authority to "plan, suggest and advise" does not seem an adequate power. Another WMC obstacle is the fact that it operates in a democracy where the individual, whether worker or executive, takes for granted the right to come and go as he desires and as he feels will best improve his own circumstances.

WMC cannot "freeze" workers to their jobs. It is quite doubtful if even a wartime Congress could effectively do this. It is prevented not so much by the Constitution as by the American type of human psychology. Manpower control plans have had to be made with the fact in mind that a great majority of workers are satisfied with somewhat uninteresting jobs simply because they feel free to leave those jobs whenever they so desire.

Selective Service can tear a man from his job and from his family without danger of creating a revolution. The War Manpower Commission is afraid it can't so easily change a worker's pattern of living. It is afraid of what would happen in this democracy should it be decreed that no man could work except where he was ordered to work.

So WMC is taking things one at a time, making a recommendation here and issuing an order there. Meanwhile it is trying to shape up a manpower control act which might be acceptable to the Congress and to the people. By taking things one at a time it is hoped that when overall controls are ready for a try, many of the inequalities and uncertainties causing manpower problems will be worked out.

The aircraft industry is faced not only with a tremendous current turnover but with the threat of Army requirements in the very near future which will remove many workers from their "essential occupation classification." The industry is being urged by many Washington officials not to wait for action from WMC, but to plan to lose, sooner or later, virtually every worker of draft age. Only by planning on this, it is contended, will the industry be operated by women, old men and cripples by the time the manpower problem really becomes a problem.

WMC, for all its lassitude and delay, has recently taken an important and significant step. It has ordered workers in the West Coast lumber and mining industries not to leave their jobs unless given permission to do so by U. S. Employment Service. It has requested employers not to hire such workers unless they have U. S. E. S. authorization to switch jobs. It has set up conditions under which a switch is permissible. These include circumstances under which a worker's full skill is not being utilized, when work is not full time, when he has to travel too far to reach his job, when he has "compelling" personal reasons, or when his wages are substantially below the standard in the community for the same type of work.

WMC admits this order cannot be enforced except through Army and Navy power over their contractors, and through cooperation from workers and employers. Many officials frankly don't expect it to work. It is simply an experiment, a test case. If successful it will be applied in other industries or other areas where labor is critical. If it doesn't work, WMC simply will have to try something stronger.

David Shave

## WPB Summary

**COPPER USES,** in line with other recent WPB moves toward strict restriction of the use of critical metals, now limited to items included in the Military Exemption List. Even the armed forces now cannot use copper except for certain uses designated on the List.

**UNIFORMS FOR WOMEN** in private owned war plants must conform to size and cut restrictions imposed by WPB limitation order L-85. Although in force for some time, L-85 has been frequently interpreted as not applying to plants working on government contracts. WPB emphasizes that it is intended specifically to cover uniforms of women in war plants.

**OVERHEAD TRAVELING CRANES** have been made subject to direct WPB production supervision and allocation through General Preference Order M-22.

**CUTTING TOOL** manufacturers have been ordered, effective Oct. 1, to schedule production strictly according to the priority apportionments. (T-817)

**STATUS OF LABOR** representation of WPB is under discussion following recent conferences between Donald Nelson and labor leaders. To labor protest that it lacked voice on WPB policies Nelson answered with the suggestion that responsible labor men be nominated to the unions for administrative posts on WPB. He emphasized that such men if named to high jobs, would be working for WPB and not for labor interests. Nelson agreed that labor should be better represented in WPB industry branches and should be consulted on plans and policy which might have ultimate effect on the worker.

**CONTRACT DISTRIBUTION** Branch of WPB has been disbanded, with most functions of the office now assigned to the Smaller War Plants Corp. C. Hallenborn, chief of the Branch, has moved over to the Aircraft Production Division as special assistant to H. Talbott, Chief.

**PLANT CONSTRUCTION** projects will be checked to make sure companies are not ordering materials under priorities assigned to production items of the company. Interpretation No. 1 to Priority Regulation No. 12 explains that priorities assigned under PRP cannot be used to acquire materials for plant expansion or new capital equipment.

**AIRCRAFT LOGS** of Noble fir and Western hemlock have been frozen in the hands of owners as of Sept. 11, and processing or distribution is prohibited except through specific authorization from the Director General for Operations of WPB.

**ADMINISTRATIVE PERSONNEL** WPB are named on an official list. It is available by writing WPB Information Division, Room 1501 New Security Bldg., Washington, D. C.

### Unique CPT Home

Death Valley Inn, tourist stopping place near Baker, Calif., has been leased by United Flying Schools with all its buildings and tourist cabins to be converted into living quarters for CPT trainees.



THE MAJORITY  
OF TWIN ENGINE TRAINERS  
*are powered by*  
**JACOBS**  
*Engines*



THE CESSNA AT-17 "BOBCAT"

**JACOBS AIRCRAFT ENGINE CO.**

POTTSTOWN • PENNSYLVANIA • U.S.A.



## Arnold Wants AVG Pilots for Army Air Forces

Lieut. Gen. H. H. Arnold, commanding general of the AAF, has written Brig. Gen. Claire Chennault, commander of AAF forces in China, a letter of commendation, praising the achievements of this group.

In his letter Arnold said: "As a concrete example of the world-wide effect of your superior performance of a most difficult duty, I want you to know that I am personally directing a major and intense effort to enroll in the Army Air Forces all of your ex-American Volunteer Group combat personnel who are now in the States. We are after those lads in order that the skill, experience and ability which you have instilled into them shall not be lost to the Army Air Forces. . . ."

This message was interpreted as giving weight to rumors in Washington that the Army is experiencing difficulty re-enlisting the AVG pilots. Reliable sources report Chennault, who went to China after being "cold-shouldered" by the Air Forces, had instilled into the AVG fliers a care-free method of conduct. He allowed them liberties of action which they would find difficult to surrender in joining the AAF.



**Civil Air Ambulance:** Relief Wings demonstrates use of its first flying ambulance, a remodeled Beechcraft. Army has permitted it to fly along the Eastern Seaboard. Ruth Nichols, national director, watches from cockpit. The ship, based at LaGuardia Airport, New York, is subject to immediate call for evacuation of civilian sick and wounded. Eleven sections, with volunteer enrollment of 154, including 63 flight surgeons and 91 flight nurses, are reported.



### WHY PARKS TRAINED MEN ARE SO IMPORTANT TO YOU NOW

The leadership training acquired by every graduate of Parks Air College has never been so important to the industry as it is today.

Parks basic, yet broad, educational methods give each graduate essential technical information, plus training in the business side of the aviation industry. Thus in war or peace, Parks graduates are vitally useful men—whether engaged in the development, production, maintenance, or operation of America's commercial or military aviation.

Parks trained men can materially help out country's plans for air superiority now! A letter or wire to Oliver L. Parks, President, will bring information as to available graduates today.

**PARKS AIR  
COLLEGE, INC.**

East St. Louis, Illinois

## AAF Launching Ad Program For Many Technicians

Army Air Forces is launching an intensive campaign in the press, radio and with posters to meet the demand for skilled mechanics, radio-men and other specialists. Air Forces Training Schools are expected to supply adequate numbers of these specialists later in the year, War Department says, but in the meantime a nation-wide program to enlist qualified men is necessary.

The Air Force needs aircraft and automobile mechanics, armorers, gunsmiths, instrument makers and repairmen, watch and clock makers, appliance, servicemen, jewelers, aircraft radio mechanics and operators, aircraft metal workers and welders.

To making recruiting as simple as possible and get the man into his specialized work without the customary toughening and indoctrination work, much of the red tape procedure has been dropped. It will now be possible for the enlisted man to go directly from his induction center to work.

The applicant fills out one copy of a special application form, stating his main and secondary occupational specialties. He is then Given R-1 intelligence test and, if found acceptable, he will receive endorsement by the U. S. Employment Service. The applicant is then given the required physical examination and if found physically qualified, his enlistment for direct assignment to the Army Air Forces will be accomplished, an official said.

Officials of the AAF point out that

## Pacific and Atlantic Flight Marks Broken

Flying records for passages from Europe to New York and from Australia to San Francisco have been broken.

In the Atlantic crossing, Capt. Edward A. Stewart flew American Export's "Flying Ace" east to west in 19 hours and 54 minutes actual flying time, with elapsed time of 21 hours and 54 minutes. Stewart carried 14 passengers. On the Pacific trip, Lieut. Gen. George H. Brett, former commander of allied air forces in the Australian zone, flying an Army flying fortress non-stop, cut the record to 36 hours and 10 minutes.

Previous record for this latter flight, made by the late Sir Charles Kingsford-Smith in 1934, was 51 hours and 49 minutes.

this enlistment is not temporary. It is on a duration plus six months basis. Nor does it mean that the Air Forces student technical training program is falling down. The student program is progressing satisfactorily but at the outset, it is not producing enough trained men to supply the demand created by our rapidly expanding aircraft production, it was reported.

"The technically trained man will enlist in the regular ranks but his technical proficiency will enable him to secure a specialist rating with the pay that accompanies it. Some may win wings as flying technicians which will entitle them to an increase of 50% of their base pay."

## Airmen Reply

(Continued from page 10)

against captured enemy planes it performed better at 25,000 feet and than anything we have so far met on the European front. Our high altitude fighter, and I am speaking particularly of the 2-engined P-38 now, will be at least as great firepower as the Spitfire, will climb and perform as high as it will for all practicable purposes wherever the bomber goes, which the Spitfire, having a very limited range and time in the air, cannot do. The P-47 which is now in production we think, also out-perform and outlast any fighter that we know about at any altitude.

"Just before I came out here I attended a meeting at which reports of the very recent fighting in the Solomon and Milne Bay were given. I cannot relate the most recent victories to a particular type of plane; that is, whether the successes were achieved by P-40's or P-39's or to what extent the carrier based planes of the Navy were involved but if we keep it up against the Japs at the rate we are going with our present equipment we should feel much encouraged about what we can do to them with the new planes that are shortly to be in action.

"There has also been some publicity to indicate that our heavy bombers are not well suited for serious work. The criticism here centers around the B-17 the Flying Fortress. How it can, in spite of the perverseness of some critics, be inexplicable in the light of our experience.

"I have heard no serious criticism of the B-24's, the other 4-motored plane which we are using in quantity but its chief accomplishments have been in the Middle East.

"The B-17 was designed over 8 years ago. With its present improvements it has already made a remarkable record. It is a great aeronautical achievement and we can be proud of it.

"The English bombers fly at lower speeds, are less heavily armored and carry a substantially greater load. They fly, in the main, at night. If we can fly in the daytime with faster planes and lighter bombs, we may soon start round-the-clock bombing which may give even the German people something to think about when they recall Goering's promise that no bomber could operate over German soil."

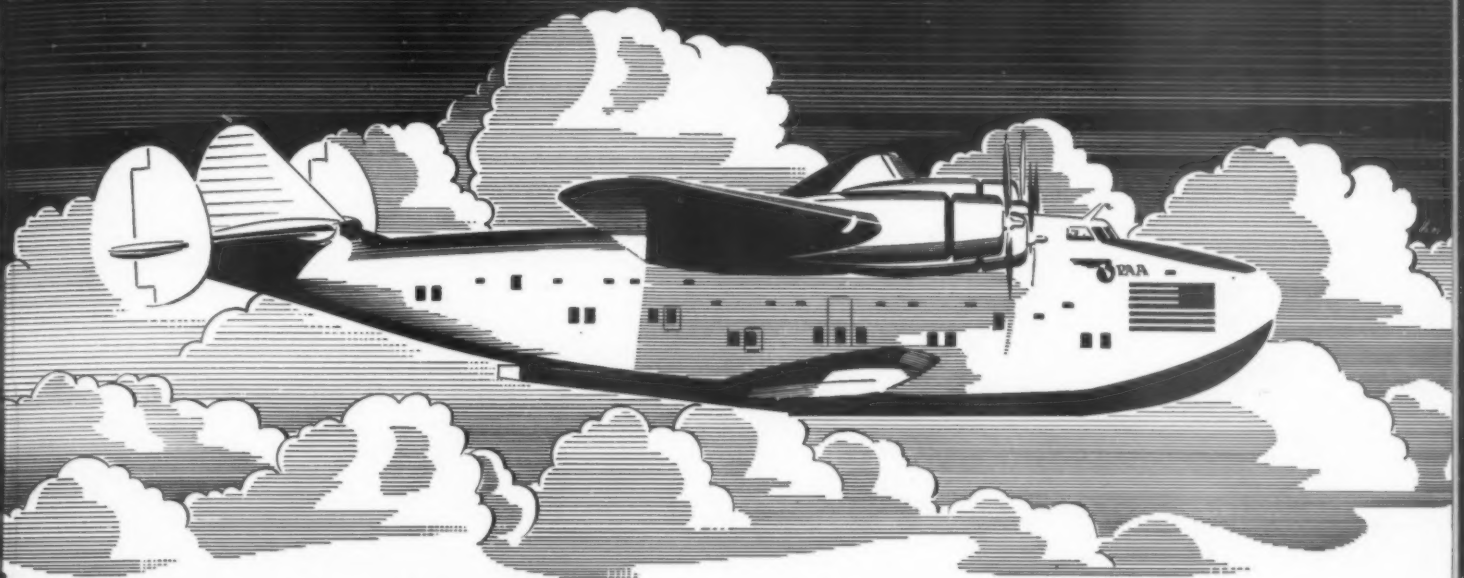
## Sworn Oath Given to Protect Bombsight

A bombardier cadet starts his training schedule at Williams Field, Ariz., by taking solemn oath to "guard with his life" the secret of the famous bombsight which is held to be one of the nation's most priceless military assets.

During their 12-week training period, the cadets have no classroom and all notes which they take down and master on the working of the bombsight are committed to memory. Nothing is ever placed in writing to be carried away with the cadet. As a bombardier pilot as he later expects to become, each man is pledged in event of a forced landing or crash on enemy soil to guard with his life or destroy the bombsight in such a way that it will not be of value to the enemy.

# PAN AMERICAN'S BOEING CLIPPERS

## *Rely on Weatherhead*



*Weatherhead flexible hose and fittings installed for gas and oil lines on Wright Cyclone engine of a Pan American Airways Boeing Clipper.*

**P**OWERED with Wright Cyclone Engines, the great Boeing 314 Clippers of Pan American Airways are transporting men and materials vital for the war effort to all parts of the globe.

The smooth operation of these great ships in their history-making flights depends in a large measure upon Weatherhead hose, valves and fittings used in oil, fuel, vacuum, and engine pressure systems. These parts include Dural Tube and Pipe Fittings and High, Medium, and Low Pressure Flexible Hydraulic Hose Assemblies. In addition to aviation fittings and hose, Weatherhead produces Vacuum Selector and Check Valves; Hydraulic Check Valves; and Hydraulic Actuating Cylinders. All are manufactured to Air Corps, Navy, or "AN" specifications. Each part has been engineered for mass production to provide the increasing output so essential today.

THE WEATHERHEAD CO. ★ AIRPLANE DIVISION  
 East Coast Office: New York, N. Y. ★ Main Office: Cleveland, Ohio ★ West Coast Office: Los Angeles, Cal.







**Lauds Pre-War Airways:**  
Major William M. Marks, Jr., post operations officer at Bolling Field, Washington, thinks that "the efficient airway traffic control and radio aids to navigation in effect before our entrance into the war have been most beneficial to the rapid expansion of the Army Air Forces" and has paid tribute to the commercial pilots for "making a valuable contribution to the up-building of the AAF." Such a generous tribute of pre-war development makes war-time news. Thanks, Major.

## Arnold Praises U. S. Planes

(Continued from page 11)

fighter—the Republic P-47, or Thunderbolt—now is in production and ready for delivery to combat theaters.

This plane is regarded as a tremendous package of power and is believed able to outfly and outfight any other known airplane. It carries enough guns to generate at maximum firing speed an impact equal to the force of a five-ton truck hitting a brick wall at 60 miles per hour.

Moreover, it is built not only to give but take rough treatment, weighing some 11,000 pounds as compared with the 6,000 of ordinary pursuits or fighters, most of the weight being in armor, armament, supercharger and equipment for high-altitude flying. Definitely in the 400-mile-per-hour class. It will be at its fastest between 25,000 and 30,000 feet.

American bombing planes have established themselves as superior to anything thus far shown by the enemy.

### Comment on Bombers

The Boeing B-17, or Flying Fortress, has gained world fame in the present war. The Consolidated B-24 Liberator also has made an impressive reputation in all parts of the world. The smaller, agile Douglas A-20 attack bomber, known to the British as the Boston and, in a night-fighter version, as the Havoc, also has performed notably. The North American B-25, in which General Doolittle raided Tokyo, and the Martin B-26, a fast bomber which has "doubled in brass" by carrying torpedoes at Midway and in the Aleutians, are other bright stars in the galaxy of American bombers. The Lockheed Hudson, built for the British, has been an outstanding performer since the start of its long career.

### Boeing B-17

Here are a few typical actions in which B-17's were engaged:

On July 25, at Buna, New Guinea, one B-17 was engaged by 15 Japanese Zero fighters. The B-17 was slightly damaged. Enemy losses, one Zero shot down and two others probably shot down.

On July 17, at Tulagi, one B-17 was engaged by three Zeros. The B-17 was not damaged. One enemy plane was shot down and one was left burning.

On July 19, in the Rabaul area, five B-17's were engaged by ten Zeros. None of the American ships were damaged but one Jap was shot down and two possibly shot down.

There are the well-known examples of Captain Wheelers, whose aerial gunners fought off a sustained attack by a squadron of Zeros during a running fight of more than 75 miles, and Captain Sharp, whose crew fought 23 Jap Zeros for two hours over Burma, destroying at least four of them before being forced down.

### Consolidated B-24

The British have called the B-24 Liberator bomber one of the finest military aircraft yet produced. While it is true that the bomb loads carried by the B-17 and B-24 bombers are less than those which can be carried by the new British four-engine bombers, their range is far greater. The American bombers were built with an eye to vast distances while the British ships were designed for and have been used in the European war, almost exclusively, with the German industrial centers as their principal targets. The American bombers also have been designed for daylight bombing of specific military targets—a mission which demands greater speed and gun-power than any type of night bombing.

The B-24 immediately became the backbone of the Atlantic ferry service from Canada to Great Britain when it was inaugurated last year and, even prior to United States entry into the war, these airplanes had completed more than 100 routine trans-Atlantic crossings in all kinds of weather, carrying such passengers as Ambassador Winant, Lord Halifax, Prince Bernhard, Lord Beaverbrook, Prime Minister W. MacKenzie King, and the Duke of Kent.

A B-24 took the Harriman Mission to Moscow early last fall and continued on around the world, flying approximately 24,700 miles.

The B-24 has played an outstanding role in the battle of the Atlantic, attacking German submarines and supply ships and beating off German aerial sea raiders in many actions.

B-24's played a major role in attacks on the Italian fleet in the Mediterranean June 15, scoring numerous direct hits on Italian battleships and other warships.

### North American & Martin

In the B-25 and B-26, the United States has a pair of medium bombers that definitely outclass anything in the world. They carry about two tons of bombs at speeds of over 300 miles per hour and are very heavily armed.

Other United States medium bombers, such as the Lockheed Hudson and Ventura and the Martin Maryland and Baltimore, have been going to the British and have been used with very great success. The Hudson has become a synonym for effective service with the R.A.F. Coastal Command and the Marylands have made a great name in the Middle East. For all-around performance both proved superior to foreign types.

The B-26 is regarded as a very advanced type. Reports from the Japanese theater show that it has speed and firing power enough to make it self-sufficient and that it can conduct raids over heavily protected enemy territory without fighter protection.

At Lae, New Guinea, on July 4, ten B-26's were intercepted by 15 Zero fighters. Four Zeros were shot down and one more probably shot down. Four of the B-26's were damaged but returned. One B-26 was lost by having the wing knocked off by a falling Zero that had been shot down by another B-26.

The B-26's demonstrated their versatility by going into action as torpedo planes at Midway and in the Aleutians, with very successful results.

The B-25 gained lasting fame in the Tokyo raid. It previously had demonstrated its stamina and hitting power, however, when ten B-25's, teaming up with three B-17's, flew 2,000 miles from Australia to the Philippines to attack the Japs, with excellent results. In both attacks, the B-25's ran away from the best pursuits the Japs could put into the air.

### Douglas A-20

One of the war's most striking examples of versatility and all-around efficiency has been provided by the Douglas A-20 two-engine attack bomber. The British have used it as its American designers intended originally that it should be used—as a tree-top attack plane. The latest plane of this model, the Boston III, or A-20C, carries a heavier bomb load and is considerably faster than the R.A.F.'s principal attack bomber, the Blenheim, we are informed. It was with this airplane that American Army Air Forces pilots, on July 4, made the first AAF raid on the Euro-

pean continent. One of the group, Major Charles C. Kegelman, was forced down on the Dekooy airdrome in Holland where one motor shot apart, the tail assembly riddled with bullets and other damage. He crawled off the runway at 275 miles per hour, tearing a gaping hole in the fuselage, but got the ship back into the air, blasting two anti-aircraft towers at the edge of the field as he did so and came home safely.

Recent sorties by the Bostons in Northern France have included 16 against power stations, 10 against German airdromes in occupied countries, and 32 against industrial targets. In these 52 raids, in spite of the concentrated anti-aircraft defenses and German fighter protection in the areas raided, only one Boston failed to return.

In the Middle East Command A-20 Bostons have been used against fighter-protected motor transport and airdromes. A total of 191 such sorties have been reported during which hits were scored on motor transport equipment and enemy aircraft on the ground and one enemy fighter, which was destroyed in the air. In these total operations, only one Boston is missing.

A British official report from Libya states that two South African Air Force Boston (A-20) Squadrons have flown more than 1,500 sorties between May 23 and July 9. On July 7 their first aircraft was lost to enemy fighters since the beginning of the campaign. The effectiveness of the R.A.F. daylight attacks on the enemy by Bostons and Kittyhawk P-40 fighters used as fighter-bombers has been confirmed by reconnaissance.

On August 6, according to a press communique from General Stilwell, United States bombers with fighter escort attacked an airdrome outside Canton, destroying several enemy aircraft on the ground. Japanese Zero fighters then attacked. Two of the Zeros were attacked and shot down by our fighters. Another was destroyed by the rear gunner in one of the B-25 bombers. No losses on our side were reported.

Another press communique from General MacArthur's headquarters tells of a 900-mile daylight raid from Australia against Jap airdrome facilities on New Britain Island during the course of which the bombers were intercepted by 20 of the new-type Zeros. The bombers successfully completed their missions and, in a wild fight, shot down seven Jap planes and damaged others, with a loss of only one Allied plane.

### CAA Instructors Finish Army-Navy Courses

Successful completion of Army and Navy "clinics" for Civil Aeronautics Administration flight supervisors and instructors, in an unprecedented cooperative program with CAA, has been announced by CAA. Regional and Washington CAA instructors and supervisors became "students" at Army and Navy bases to learn the Services' aviation methods. Following the "schools," the CAA men returned to their sections to pass on the information to operators of CAA contract flight schools. Two men from each of CAA's seven regions and two from the Washington office attended the Army "school" at Randolph Field, and the same number attended the Navy "school" at Pensacola, Fla.

(Reading Time: 36 Seconds)

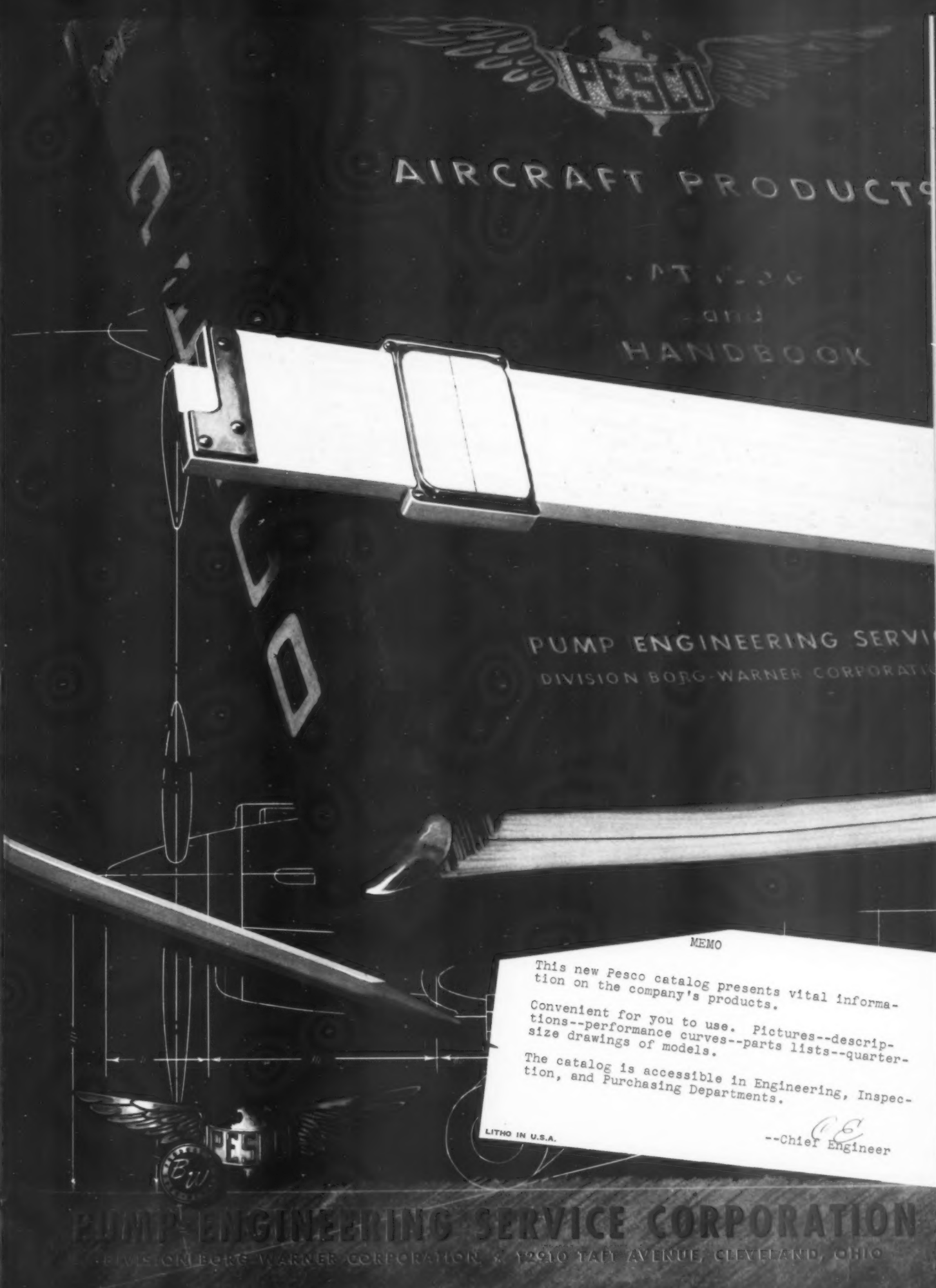
**THIS CONCERNS YOU!**

**YES**—and millions of travelers who will consider the selection of a New York City hotel this year. The one that offers you most for your hotel dollar is the easiest to remember: the Hotel New Yorker. It has everything! Location, superb service, splendid accommodations, mouth-watering cuisine, and a fine reputation to maintain. It is New York's largest and most popular—3,000,000 guests since 1930. Imagine!



up. Ma  
red down  
and with  
assembly  
damag  
275 mil  
le in the  
into the  
town  
e did n  
  
in North  
against  
man air  
and 36  
these 52  
ted anti  
a fighter  
ed, only  
  
nd A-20  
t fighter  
nd air-  
ties have  
its were  
quipment  
und and  
destroyed  
operations.  
  
m Libya  
can Air  
ons have  
between  
7 their  
r fighter  
campaign  
dayligh  
tons and  
s fighter  
y recon  
  
a press  
Stilwell  
ghter se-  
side Can-  
aircraft  
fighters  
ros were  
fighters  
the rear  
bombers  
orted.  
  
rom Gen  
of a 900-  
a agains  
y Britain  
which the  
0 of the  
success-  
and, in  
ven Jap  
th a lon  
  
Course  
Army  
l Aero-  
t super-  
unpre-  
arm with  
y CAA  
CAA in-  
became  
ry bases  
n meth-  
ls," the  
eir sec-  
ation to  
t flight  
each o  
vo from  
ded the  
h Field  
ded the  
Fla.

1942



AIRCRAFT PRODUCTS

AT 1000  
and  
HANDBOOK

PUMP ENGINEERING SERVICE  
DIVISION BORG-WARNER CORPORATION

MEMO

This new Pesco catalog presents vital information on the company's products.

Convenient for you to use. Pictures--descriptions--performance curves--parts lists--quarter-size drawings of models.

The catalog is accessible in Engineering, Inspection, and Purchasing Departments.

LITHO IN U.S.A.

--Chief Engineer

PUMP ENGINEERING SERVICE CORPORATION  
DIVISION BORG-WARNER CORPORATION, 12210 TAPP AVENUE, CLEVELAND, OHIO



## *Here Come* **THE CORSAIRS**

High-powered Vought Corsairs are rolling off production lines for the United States Navy.

With their 2,000-horsepower air-cooled engines, these mighty ship-board fighters pack the firepower, range, climb and speed at all altitudes to take the measure of the best the enemy can produce.

**VOUGHT-SIKORSKY AIRCRAFT**

STRATFORD, CONNECTICUT

One of the three divisions of  
**UNITED AIRCRAFT CORPORATION**

Atla  
Forces  
hotels  
Break  
Jeffers

New  
station  
install  
approx  
Count  
\$3,000,000  
by the

More  
proved  
and B  
new li  
work  
and it  
be in

Flye  
Sharp,  
whose  
fighter  
award  
Pvt. F  
his bla  
Six m  
out of  
territo  
are li  
probab  
Herber  
sisted  
crash  
village

New  
act. R  
Roosev  
will b  
the ou  
nation  
as offi  
fied fo  
Seamer  
that 1  
fight  
Those  
mary  
noted  
to adv  
commi

Pers  
Dept.  
of rec  
troops  
ives  
by sh  
transp  
tinued

Air  
Gen.  
Gener  
mand,  
child,  
Requir  
for te  
major

More  
over m  
The  
Flande  
sen, K  
Glaas  
serve  
Forces

Work  
has de  
cating  
out a  
Started  
by the  
vide o  
soldier  
ties th  
on rec  
have c  
credits  
verity  
from

New  
These  
open  
flight  
lations  
ing G  
he m  
Senior  
Pilot,  
Pilot,  
Observ  
Observ  
Pilot,  
the A  
officer  
Enli  
ratings

Am

# Army-Navy Bulletins

## ELASTIC STOP NUTS

...hold tight in action

**Atlantic City Hotels:** The Army Air Forces will take over the following hotels in Atlantic City, N. J.: The Breakers, St. Charles, New Belmont, Jefferson, Arlington, and Demarest.

**New Air Forces Installations:** Authorizations for the construction of Air Force installations at Columbus, Ind., to cost approximately \$2,000,000 and in Alpena County, Mich., to cost in excess of \$3,000,000 have been announced recently by the War Dept.

**More Blimp Bases:** The Navy has approved the selection of Houma, La., and Beaumont, Texas, as sites for two new lighter-than-air bases. Construction work will start within the next 30 days and it is expected that the bases will be in operation by next spring.

**Flyers Decorated:** Maj. Frank D. Sharp, AAF, and his crew of eight men whose Flying Fortress battled 23 Jap fighter planes over Burma, have been awarded silver stars. The award for Pvt. Francis J. Teehan, who fell beside his blazing gun, was made posthumously. Six members of the crew, who bailed out of the disabled plane over Burma, territory controlled by the Japanese, are listed as missing in action and are probably held as prisoners of war. Lt. Herbert E. Wunderlich, co-pilot, assisted Sharp in guiding the plane to a crash landing near a British controlled village in India.

**New Aviation Student Rating:** A new act, recently approved by President Roosevelt, provides that student aviators will be enrolled as Aviation Cadets at the outset and will remain in that designation until qualifying for commissions as officers. Heretofore, all who qualified for flight training were enlisted as Seamen Second Class and continued in that rating throughout their primary flight training, a period of three months. Those who successfully completed primary flight training were then promoted to Aviation Cadets and sent on to advanced flight training leading to commissions.

**Personal Messages Banned:** The War Dept. has announced that transmission of recorded personal messages between troops in overseas stations and relatives or friends in the U. S., whether by short-wave radio broadcasting or transportation of disks, will be discontinued.

**Air Force Officers Promoted:** Brig. Gen. Harold L. George, Commanding General of the Air Transport Command, and Brig. Gen. Muir S. Fairchild, Director of Air Forces Military Requirements, have been nominated for temporary promotion to rank of major general.

**More Army Hotels:** Army has taken over more hotels in Atlantic City, N. J. The DeVille, Holmhurst, Brighton, Flanders, Stanton, Stevenson, Chelsea, Knights of Columbus, Penn-Ryan, Glaslyn-Chatham, and Crillon will serve as new homes for Army Air Forces units.

**World's Largest University:** Army has devised a new technique for educating the soldier which will be tried out at the world's largest school. Started at the University of Wisconsin by the Army, the new school will provide correspondence courses for 75,000 soldiers who have enrolled. Universities throughout the country have gone on record as favoring the plan and have expressed a willingness to accept credits earned at the "Mail-order University" toward post-war graduation from American universities.

**New Ratings of Flying Personnel:** These twelve aeronautical ratings are open to officers, warrant officers and flight officers who qualify under regulations prescribed by the Commanding General of the AAF or any officer he may designate: Command Pilot, Senior Pilot, Pilot, Senior Balloon Pilot, Balloon Pilot, Senior Service Pilot, Service Pilot, Senior Aircraft Observer, Aircraft Observer, Technical Observer, Glider Pilot and Liaison Pilot. Command of tactical units of the AAF will be placed only with AAF officers qualified as pilots. Enlisted men are eligible for all ratings except that of Technical Ob-

server, which can be held only by an Air Corps officer and qualified pilot. Only flying officers rated as pilots of service type aircraft who are commissioned in the Air Corps, and qualified permanent generals of the line who hold pilot ratings for service types, may command any tactical units of AAF, except in air transport units or where the unit is equipped solely with liaison aircraft or with gliders, when any flying officer or glider pilot may command. The Army explains pilots of service types of aircraft are any officer, warrant officer, flight officer or enlisted man who on July 2, 1926, held any aeronautical rating as pilot, or who has subsequently been or may be granted a rating.

A flying officer entitled to flight pay—50% of base pay—is one who has been granted a rating as a pilot on service types of planes, aircraft observer or any other member of a combat crew. The Army's new regulation also provides that for the duration of the war, plus six months, flight surgeons and commissioned officers or warrant officers undergoing flying training shall be considered as flying officers.

**Unit Markings:** Squadrons, companies and similar organizations may now submit any design to represent their particular unit to the Office of the Quartermaster General. The Office will copyright designs after they have been submitted from a drawing or word description and after they have been approved by the Commanding General, AAF.

**Guide Book for AAF Officers:** Lt. Col. C. W. Kerwood, AC, has published through the Public Relations Branch a handbook entitled "Service with the British" designed to aid the officer sent to England on duty.

**Navy Offer to Students:** To speed recruitment of men to become instructors, the Navy will offer probationary appointments as ensigns or lieutenants (j.g.) to high school graduates who have completed the CAA beginners' training course, or 50 hours flying time. In this way flyers of 19-32 may be accepted who are not qualified as combat flyers because of marital status, minor physical defects, or age. Naval Aviation Cadet Selection Boards will choose the successful candidates, who will be assigned to courses lasting from eight to 24 weeks, and who will receive full pay during that time.

**Big Navy:** Admiral Ernest J. King said current Naval personnel of 600,000-700,000 will be increased to 1,500,000, in an address before the Cleveland Chamber of Commerce Aug. 31. "Enlistment in the Navy so far has been entirely voluntary. We of the Navy wish to keep it that way," he added.

**Coast Guard Patrol:** From Dec. 7, 1941, to June 30, 1942, Coast Guard flyers patrolled 17,842,231 square miles, cruised 2,245,357 miles and located 508 survivors of torpedoed ships, Navy announced.

**Chennault Remains in Charge:** Brig. Gen. Claire L. Chennault remains in charge of AAF in China, and will not be affected by the appointment of Brig. Gen. Clayton L. Bissell to command of AAF in China, Burma and India, War department explained.

**Army Changes Insignia:** War Department announces a further change in the display insignia of Army airplanes. Henceforth, instead of being carried on both wings, upper and under surfaces, the five-pointed white star, circumscribed by a blue circle, will be carried only on the upper left wing surface, the under right wing surface and on both sides of the fuselage. On May 15, 1942, the Army eliminated the red disc, formerly inscribed in the star, from all combat plane insignia, and from all other planes on June 15, as well as the former red, white and blue tail markings.



Here's a glimpse of the Martin B-26 Medium Bomber at work. As with all the fighting airplanes built in the United States and Canada, this fast hard-hitting ship is protected by Elastic Stop Nuts and Self-locking Fittings at thousands of points where vibration and critical stresses make tight fastenings essential.

ELASTIC STOP NUTS are now available for testing, without cost or obligation. Just specify the nature of your application, and the number and size of nuts required.

»Catalog on request

ELASTIC STOP NUT CORPORATION • 2354 VAUXHALL ROAD • UNION, NEW JERSEY



Let's help the American Industries Salvage Program  
... throw your scrap into the fight



# Workers Enlist by Hundreds

(Continued from page 1)



**Nazi Tail Brakes:** These International News Photos show the tail "parachute" brakes on a new Nazi dive bomber, the German Stuka Dornier 217. On previous Nazi dive bombers, the airbrakes were on the wings of the craft. The braking device exerts its full braking power at the lowest point of the dive. Photo taken in England with captured Nazi plane.

The Undersecretary then added an assurance that:

"No voluntary enlistments in the Army will be accepted from 2A, 2B or 3B registrants without clearance from their local boards.

"The Army will not offer commissions to men who in the opinion of the Army can make a greater contribution to the war effort by remaining in industry."

It appeared probable that identical guarantees would be immediately forthcoming from other service branches. Sources close to Navy policy makers talked of verbal assurances already received, which would be especially significant because of the Navy's long-standing dependence upon voluntary enlistment for most of its recruiting. This left only a promise of rigid adherence from Selective Service boards to be obtained.

Already the aircraft industry in California has lost more than 15,000 employees to the military services since Jan. 1, industry sources revealed. A survey of the experience of Douglas, Lockheed, North American, Vega and Vultee showed that 3,593 men left these five factories during the first 28 days of August to enter the services.

During the first six months of 1942, an average of 1,390 men left these five companies each month to join the Army, Navy or Marines. Sixty-six per cent of those men left voluntarily. The same five companies reported an increase over the six-month average of 56 per

cent in July, when the total number went to 2,167 men leaving for military service. Of that total, 70 per cent were volunteers.

An increase of 158 per cent over the six-month average was recorded by the five companies in the first 28 days of August. Figures prepared by two of these companies for the last week in August showed that 90 per cent of their men leaving for military service were volunteers.

Figures of the five companies represented a rate of turnover for military service of 1.91 persons for every 100 employees in August. This figure was doubled between Aug. 24 and Aug. 26 by at least two companies, bringing their rate to 3.82 persons for each 100 employees.

The Aircraft War Production Council commented:

"If the rate of 3.82 persons leaving for military service out of every 100 employees continues for the five southern California companies for the next 30 days, without any further increase in the percentage, a total of more than 7,000 aircraft industry workers will be lost to military services. It should be pointed out that many of these are in jobs essential to war production and are irreplaceable at this time. The figure for all eight companies in southern California will of course be considerably higher."

"However," industry spokesmen added, "that rate is still increasing and until the trend is checked effectively and immediately, the aircraft companies of southern California will be denuded of experienced workmen in the draft age group by the end of 1942. Many of the men now leaving are men who must be depended upon to teach new workers on the job. Without sufficient personnel to instruct new personnel, the entire airplane production program of California plants, which represents a large proportion of the nation's aircraft production, will suffer a dangerous setback which may disrupt schedules."

Inquiry among executives reveals that voluntary enlistment losses have been far more alarming than draft withdrawals. In August one large company reported a 4% loss by induction, as compared with a 16 2/3% loss by enlistment, and the aggregate figure would be 25% if women were excluded.

"The most alarming factor in this situation is that it represents a steady increase for the last six months," said one company president in a letter to an official of the War Production Board.

"Employees in this (draftable) category become panicky and take advantage of boards to enlist in branches of the service attractive to them rather than be constantly threatened with the draft."

One spark for the exodus of draft-conscious craftsmen was a

newspaper headline in Los Angeles saying "HALT DEFERMENT OF DEFENSE WORKERS IN CALIFORNIA DRAFT." The accompanying story was merely a repetition of well known regulations providing that employers should continue making efforts to train replacements for able-bodied men of military age.

With that start, California's army of aircraft workers read into the ensuing series of Congressional publicity on Selective Service changes a certainty that their number was up. At a special meeting of the Aircraft Parts Manufacturers Association, representing 140 southern California aircraft parts processors, companies reported losing such critical mechanics as turret lathe operators in batches of five and ten in a single day. The association promptly drafted protest resolutions which were wired to Washington officials. Local parts makers said:

"Of all of the man-made crises our industry has had to face, conflicting government statements regarding the draft prospects of our workers and regarding job freezing are the worst bottleneck of all."

Even while training tens of thousands of new employees to meet expanded schedules, however, the Selective Service committees in each plant have kept ever before them the admonition that, after the first six month deferment to permit replacement training, no further deferment can be granted unless the company can prove a "sincere but unsuccessful effort to obtain a replacement" has been made.

In the military schools maintained by the companies at their own expense to offer technical training to Air Force troops, one company's educational director related that under his direction an average of 600 trainees are being returned to Air Forces each month, after a 28-day ground school course during which they are permitted leave only on Sundays. He estimated that similar programs underway at California aircraft plants are yielding nearly 5,000 trained maintenance men and basically-educated airplane mechanics monthly. He pointed out that even without expanding this program, the 90,000 such mechanics which Secretary of War Henry L. Stimson stated were needed by the Army could be supplied in 18 months.

The Stimson statement, made at a Sept. 3 press conference in Washington, said "Most men the Army is seeking can be secured without going into the factories at all."

The Army has been very careful not to raid industry, he said, and estimated that after the present special recruitment campaign, intended to close Oct. 15, present training programs would probably keep pace with the Army's needs.

Your Atlanta Hotel—

## THE ANSLEY

... A LANDMARK  
of Southern Friendliness



OTHER DINKLER HOTELS  
Tutweiler . . BIRMINGHAM, ALA.  
Jefferson Davis  
..... MONTGOMERY, ALA.  
St. Charles . NEW ORLEANS, LA.  
Andrew Jackson  
..... NASHVILLE, TENN.  
O. Henry . . GREENSBORO, N. C.  
Savannah . . . SAVANNAH, GA.

In this, as in all other Dinkler Hotels, the finest in accommodations and the highest efficiency in service is supplemented by a warm cordiality and an air of sincere friendliness.

L. L. TUCKER, Jr., Manager

Angeles  
 ENT OF  
 CALL  
 company  
 ctition of  
 providing  
 continue  
 cements  
 ary age  
 's army  
 into the  
 al pub-  
 changes  
 ber was  
 of the  
 s Asso-  
 southern  
 cessors.  
 g such  
 et lathe  
 ve and  
 ociation  
 olutions  
 ington  
 s said:  
 e crises  
 ce, con-  
 nts re-  
 of our  
 freezing  
 all."  
 f thou-  
 eet ex-  
 r, the  
 es in  
 before  
 ter the  
 permit  
 her de-  
 ss the  
 re but  
 a re-  
 main-  
 their  
 train-  
 com-  
 related  
 verage  
 ned to  
 a 28-  
 during  
 e only  
 that  
 Cali-  
 elding  
 enance  
 air-  
 He  
 at ex-  
 90,000  
 y of  
 were  
 sup-  
 de at  
 Wash-  
 Army  
 without  
 1."  
 care-  
 said,  
 resent  
 in-  
 nement  
 ably  
 needs.



**CLASS OF SERVICE**  
 This is a follow-up telegram to the original telegram which is enclosed by a suitable return address on preceding the address.

**WESTERN UNION**  
 NEWSWIRE SERVICE  
 CHAIRMAN OF THE BOARD  
 J. C. WILKINSON  
 PRESIDENT  
 A. W. WILLIAMS  
 VICE-PRESIDENT

**SYMBOLS**  
 DL = Day Letter  
 NL = Night Letter  
 NL = Night Letter  
 NL = Night Letter  
 NL = Night Letter

The time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt in STANDARD TIME at point of destination.

BUFFALO, NEW YORK.

COL. CLAIRE L. CHENNAULT  
 THE OFFICERS AND GROUND CREWS OF THE AMERICAN VOLUNTEER GROUP. VIA: U. S. DEPARTMENT OF STATE.

PLEASE ACCEPT OUR SINCERE CONGRATULATIONS AND OUR APPRECIATION FOR THE MAGNIFICENT MANNER IN WHICH THE AMERICAN VOLUNTEER GROUP HAS PERFORMED. YOUR SUCCESSFUL ENDEAVORS IN THE FACE OF OVER-WHELMING ODDS HAVE DEMONSTRATED CONCLUSIVELY THAT ONLY VICTORY CAN LIE AT THE END OF THE ROAD. WE ARE PROUD OF THE PERFORMANCE THE CURTISS PLANES YOU USED IN COMBAT HAVE SHOWN AND PLEDGE OUR EVERY EFFORT TO IMPROVE DESIGN, PERFORMANCE AND PRODUCTION THAT THE UNITED STATES ARMY AIR FORCE OF WHICH YOU HAVE NOW BECOME A PART WILL BE ASSURED THE FINEST FIGHTING AIRCRAFT IT IS POSSIBLE TO CONCEIVE. THE EMPLOYEES AND MANAGEMENT CURTISS-WRIGHT CORPORATION AIRPLANE DIVISION BUFFALO, NEW YORK.

# CURTISS-WRIGHT SALUTES THE *Flying Tigers*

The exploits of the American Volunteer Group in destroying superior numbers of Japanese invaders in Burma and China are now epic. Today Curtiss P-40's of still greater fighting ability are helping to make America's Air Forces invincible on every world front.

**CURTISS-WRIGHT**  
 Corporation  
 AIRPLANE DIVISION



1903 - First Army Hawk, 400 h.p. Flown by Lt. R. L. Maughan in first coast-to-coast, down-to-dust flight—150 m.p.h.



1929 - Six years of development finds this P-6 Hawk with greater horsepower—625—and many improvements.



1937 - Retractable landing gear (a 1933 development on the Navy Hawks), a speed of over 300 m.p.h., a 1100-H.P. engine, were among the notable advances on the P-50 series.



1942 - Since the production of the original P-40's, this famous series has undergone four successive "step-ups" to new high performance levels in speed, ceiling and striking power.



SECOND PRINTING: Send 10¢ for your copy of this fascinating 96-page history of aviation by Asen Jordanoff, author of "Your Wings", with illustrations of current fighting types. Airplane Division, Curtiss-Wright Corporation, Buffalo, N. Y.



*Bell Airacobras Respond to Dawn Alarm*



## Take-off WITHOUT TRUMPETS

Charging down the runway with throttle wide and tail in air an Army Airacobra quickly pushes down the earth—then rises high above the clouds on call to duty.

No trumpets blare—no banners fly as squadrons of these fast and agile fighters of the sky ascend to battle. Yet, dramatic as it seems and is, it is the daily routine of Army Pilots. And just as Airacobras climb swiftly skyward, so has the Bell Aircraft Corporation that builds them—without fanfare or ostentation—climbed swiftly into mass-production.

Working day and night, without pattern or precedent in an infant industry, ingenuity and engineering skill were severely taxed to perform

"impossible" tasks. New production methods had to be devised—parts and assemblies designed as well as the tools and equipment that were required to produce them.

Then came the building of an organization—the gathering together of thousands of men and women, strangers to each other—unskilled in the work they were about to do—yet eager for the tasks at hand.

Training—intensive training—was the order of the day, training in the handling of machines and tools,

training that would form the habits and customs of a new-born industry.

How well this job has been done is indicated by the rising and fighting power of Airacobra Squadrons in our fighting forces and from the high praise that comes back from fighting fronts. © Bell Aircraft Corporation, Buffalo, New York.

*Airacobras for victory—*  
**BELL** *Aircraft*  
FUTURE PLANES FOR PEACE

**PACEMAKER OF AVIATION PROGRESS**

Fan  
Do  
Be

Asse  
for the la  
CAA  
before  
at In  
grave  
"objec  
Once  
defect  
pilot  
added.  
"Th  
tinued  
innum  
elemen  
gauge  
series  
a cer  
forma  
vide v  
it is l  
pletel  
termin  
airma  
jected  
tests  
sician  
robor

Tem  
O

A  
groun  
been  
Donat  
Burea  
If res  
capab  
men  
vance  
progr  
Tenn  
Tenn  
licen  
sist  
physi  
and a  
struc  
Mc  
num  
plied  
sults  
able

Air  
point  
sent  
quar  
further  
which  
school  
naviga  
ture,  
mun  
"C  
"avi  
dents  
Amer  
O.  
all y  
is 35  
Civ  
trans  
in Y  
whic  
tion,  
servi  
and  
tram  
has  
A  
Air

An



## Fancy Lab. Exams Don't Prove You'll Be Pilot, Stanton Says

Asserting that qualities essential for good pilots "cannot be tested in the laboratory," Charles I. Stanton, CAA Administrator, in an address before the Aero Medical Association at Indianapolis Sept. 4, expressed grave doubts about the validity of "objective tests" for candidate flyers. Once obvious physical and mental defects have been eliminated, the pilot should learn by piloting, he added.

"The human personality," he continued, "an elaborate complex of innumerable mental and emotional elements, can never be unerringly gauged by a psychologic test or series of tests. Such tests may give a certain amount of positive information at times and usually provide valuable 'leads' and clues. But it is highly dangerous to rely completely upon any such tests in determining whether a prospective airman should be accepted or rejected," he emphasized. "These tests should be used as a wise physician uses laboratory tests to corroborate other evidence."

## Tennessee Bureau Opens Women's Class

A school to train women as ground and flight instructors has been established by W. Percy McDonald, Chairman of the Tennessee Bureau of Aeronautics, at Nashville. If results of the course show women capable of these capacities, many men can be released for more advanced levels in the AAF training program.

Ten women will be selected from Tennessee applicants, who must be licensed pilots. Training "will consist of ground school instruction, physical instruction, first aid, engine and airplane overhaul, and flight instruction."

McDonald reports a satisfactory number of women have already applied for the 12 weeks course, results of which will be made available to all aviation schools.

## Civil Briefs

Air Training Corps of America appoints Earle L. Townsend as representative in Connecticut, with headquarters in Hartford. Townsend will further ATCA's national program, which expects to train 2,000,000 high school students in aerodynamics, air navigation, engine design and structure, as well as in safety and communications, by 1944.

"Current Aviation," a new weekly "aviation text" for high school students, begins Sept. 18, published by American Education Press, Columbus, O. The paper will attempt to cover all phases of aviation. Subscription is 35c per semester.

Civil Air Patrol planes now speed transport of key men and equipment in York, where the Pennsylvania wing, which pioneered the first courier station, leads with the first city-wide service to war industries. Five planes and pilots started this service, and traffic immediately developed. York has no major airline connection.

A New Insurance Plan for the Civil Air Patrol missions has gone into ef-

## Summary of Recent Legislation

- P. L. 421—Price Control Act. Approved Jan. 29.
- P. L. 422—Fourth Supplemental Appropriation, carries a \$12,535,872,474 appropriation for aircraft and aircraft ordnance. Approved Jan. 29.
- P. L. 441—Navy Dept. Appropriation, allocates \$5,844,281,470 to the Bureau of Aeronautics. Approved Feb. 7.
- P. L. 450—Provides overtime compensation for certain employees of NACA. Approved Feb. 10.
- P. L. 455—Provides for temporary promotion in the Army Air Forces. Approved Feb. 16.
- P. L. 474—Fifth Supplemental Appropriation, allocates \$167,440,000 to the Army Air Forces. Approved Mar. 5.
- P. L. 495—Post Office Appropriation, allocates \$24,588,115 for domestic air mail and \$16,055,979 for foreign air mail. Approved Mar. 10.
- P. L. 506—War Damage Corp. Act. Approved Mar. 27.
- P. L. 507—Second War Powers Act. Approved Mar. 27.
- P. L. 514—Authorizes acquisition of lands at Lakehurst, N. J., for the naval air station. Approved Apr. 6.
- P. L. 528—Sixth Supplemental Appropriation, allocates \$8,515,861,251 to the Army Air Forces; \$464,827,500 to the Navy Bureau of Aeronautics; \$3,500,000 to NACA; \$2,292,720 to the CAA. Approved Apr. 28.
- P. L. 531—Authorizes \$168,780,000 for Naval heavier-than-air craft shore facilities and \$25,000,000 for Naval lighter-than-air craft shore facilities. Approved Apr. 28.
- P. L. 535—Increases permissible monthly flying hours for airline pilots from 85 to 100. Approved Apr. 29.
- P. L. 567—Authorizes aviation flight rations for enlisted men, officers and civilian employees of the Navy and Marine Corps. Approved June 5.
- P. L. 570—Establishes the designation of Naval aviation pilot (airship). Approved June 5.
- P. L. 571—Grants cadets of the U. S. Military Academy undergoing flight training the same pay, allowances and insurance as provided Army aviation cadets. Approved June 5.
- P. L. 580—Contains sundry matters pertaining to the War Dept., suspending all provisions of law limiting the strength of any branch of the Army, including the Air Forces. Approved June 5.
- P. L. 592—Authorizes an increase of \$5,000,000,000 in RFC allowable indebtedness. Approved June 5.
- P. L. 603—Establishes the Smaller War Plants Corp. Approved June 11.
- P. L. 609—Extends the time limit on an Act preventing the publication of inventions in the interest of national defense. Approved June 16.
- P. L. 612—Raises the authorized lighter-than-air craft strength of the Navy from 48 to 200. Approved June 16.
- P. L. 616—Appropriates a supplemental \$9,500,000 for training of defense workers. Approved June 19.
- P. L. 625—Provides allowances for dependents of men in the armed services and contains provision for draft exemption of married men. Approved June 23.
- P. L. 626—Seventh Supplemental Appropriation, increases the aircraft plane contract authorization of the Navy by \$150,000,000. Approved June 23.
- P. L. 630—Independent Offices Appropriation, carries an allocation of \$19,089,328 for NACA. Approved June 27.
- P. L. 644—Commerce Dept. Appropriation, carries a \$269,032,600 allocation for CAA, and \$1,243,500 for CAB. Approved June 2.
- P. L. 645—Interior Dept. Appropriation, provides for the transfer of \$4,000,000 for development of helium facilities to the Navy Dept. Approved July 2.
- P. L. 646—Increases by \$110,000,000 the defense highway authorization for building access roads to military establishments and war plants. Approved July 2.
- P. L. 647—Federal Security Appropriation, provides \$195,874,000 for training defense workers. Approved July 2.
- P. L. 648—Second Deficiency Appropriation, carries air mail allocations of \$174,000 for 1941 and \$944,000 for 1942. Approved July 2.
- P. L. 649—War Dept. Appropriation, carries \$11,316,898,910 for the Air Forces. Approved July 2.
- P. L. 651—WPA Appropriation, carries \$20,000,000 for construction of airports. Approved July 2.
- P. L. 658—Creates the new designation of "flight officer" in the Army Air Forces. Approved July 8.
- P. L. 666—Authorizes a 500,000 tonnage increase in aircraft carriers. Approved July 9.
- P. L. 674—Agriculture Dept. Appropriation, carries \$50,000 for development of turf grass for landing fields and \$1,202,629 for forest products research and surveys. Approved July 22.
- P. L. 677—Authorizes CAA to train aviation mechanics and technicians, as well as pilots. Approved July 24.
- P. L. 678—First Supplemental Appropriation, carries \$41,622,625 for the CAA; \$5,000,000 for the flight strip program; \$500,000 for the Board of Investigation and Research—Transportation; \$250,000 for the aviation program of the Office of the Coordinator of Inter-American Affairs. Approved July 25.
- P. L. 628—Establishes the commissioned warrant grade of chief aerographer and the warrant grade of aerographer in the Navy. Approved July 28.
- P. L. 698—Provides for the enlistment instead of appointment of aviation cadets in the Navy and consolidates all provisions of law relating to naval aviation cadets. Approved Aug. 4.
- P. L. 700—Naval Outpost bill, authorizes \$339,490,000 for aviation shore facilities. Approved Aug. 6.

fect. New coverage will be paid for on an hourly basis for the time the plane is actually in flight. Rate on liability insurance is now 10c per airplane hour, for courier and miscellaneous service. On coastal patrol, the underwriters are absorbing this amount by the rates paid on other types of insurance. As before, the liability coverage is \$50,000/\$100,000 for public and passenger liability and \$50,000 for property damage.

**New Air Raid Siren:** Virtually every airport in the country will soon have as standard equipment, a newly okayed five-pound "V-horn" as an air raid warning device, OCD officials revealed. Following numerous tests by OCD and the Bureau of Standards, including those at Bolling Field and Washington airport, where the siren was heard above airplane motors, OCD chose the new "Signalphone."



**CAP Mission:** Two Civil Air Patrol pilots are shown loading an Aeronca with munitions samples for transportation to an Army proving ground. Immediately after shells have been "heat treated" at a nearby munitions plant, the samples, still hot, are rushed to the airport and flown to the proving ground, over 100 miles distant. At the proving ground the samples are proof fired and results transmitted to the munitions plant, effecting a considerable saving in time.



★ In keeping with the traditions of Southern California, the **BILTMORE HOTEL** ...largest and finest in Western America, invites you to enjoy its gay, festive, glamorous atmosphere to the fullest.

Dine and dance in the World-Famous 'Supper Club of the Stars'... The **BILTMORE BOWL**.

Luncheon in The **RENDEZVOUS**, the popular Biltmore 'Night Club in the Afternoon'. Visit the beautiful Biltmore **COFFEE SHOP**... the world's largest, most modernly equipped.

The **BILTMORE HOTEL**  
LOS ANGELES

1500 ROOMS • Singles \$4 to \$8  
Doubles \$4.50 to \$10



# American Aviation



Established 1937

The Independent Voice of American Aeronautics

Published the 1st and 15th of each month by American Aviation Associates Inc., American Building, 1317 F Street NW., Washington, D. C.

WAYNE W. PARRISH, EDITOR AND PUBLISHER

ROBERT H. WOOD, EXECUTIVE EDITOR ERIC BRAMLEY, MANAGING EDITOR

DEPARTMENT EDITORS: David Shawe (War Agencies); Katherine E. Johnsen, (Legislation); Conrad Campbell (Manufacturing); E. J. Foley (Equipment); James L. Straight (West Coast).

On Leave with the U. S. Navy: George Shumway, Leonard Else, R. Charles Adams.

BUSINESS MANAGER, Thomas E. Lindsey

ADVERTISING MANAGER, Thomas McGill

REGIONAL REPRESENTATIVES:

James L. Straight, Western Division Manager, 1200 Title Guarantee Bldg., Los Angeles, Calif. Telephone: Madison 1313.

Harry Brown, Midwestern Advertising Representatives, 3000 Sheridan Road Chicago, Ill. Telephone: Lakeview 6704.

O. R. Elofson, Eastern Advertising Representative, 2207 RKO Bldg., 1270 Sixth Avenue, New York, N. Y. Telephone: Circle 6-9446.

J. Forecast, British Representative, Edwin Greenwood Ltd., Strand, W.C.2, Thanet House, London, England.

PUBLISHING CORPORATION: American Aviation Associates, Inc., Wayne W. Parrish, President; Col. Albert H. Stackpole, Vice-President (in active military service); Brig. Gen. E. J. Stackpole, Jr., Secretary-Treasurer (in active military service).

PUBLICATIONS OF AMERICAN AVIATION ASSOCIATES, INC.:

AMERICAN AVIATION: Subscription rates for U. S., Mexico, Central and South American countries—\$3 for 1 year; \$4 for 2 years; \$5 for 3 years. Canada—\$3.50 for 1 year; \$6.50 for 3 years. All other countries—\$4.50 for 1 year; \$9.50 for 3 years. Member of Audit Bureau of Circulation, Associated Business Papers Inc., and Advertising Federation of America.

AMERICAN AVIATION DAILY: Published six days each week except holidays, dispatched by air mail. A comprehensive newsletter covering daily developments in aviation. \$15 per month; \$85 for six months; \$170 per year. Group company rates on request. Service Bureau available to all subscribers. CONRAD CAMPBELL, Managing Editor.

AMERICAN AVIATION DIRECTORY: Published twice a year, spring and fall. Complete reference data on administrative and operating personnel of airlines, manufacturers, accessories firm and their products, organizations, schools and local operators, federal and state government agencies concerned with aviation and related aviation interests in the U. S., Canada and Latin America. Single copy, \$5; Annual subscriptions, \$7.50. Discounts on quantity orders. Next issue Oct. 15, 1942. DAVID SHAWE, Managing Editor.

## Fortnightly Review

(Continued from page 1)

gently directed to the heart of Germany's military might—the sources of supply—can do more than all of the land second fronts in the world. If we wait too long, Germany will have had time to prepare. Now is the time for concentrated and concerted action.

Of what value to Germany are the victories five hundred and a thousand miles from her home base, if the home base is destroyed or crippled. How much of Germany's industrial and transportation resources would have to be put out of action is difficult to estimate, but perhaps twenty-five per cent would be sufficient to turn the tide of the war. Internal disruption of supply lines and supply sources will do more to end the war at this stage than ten costly land endeavors.

There is too much diffusion of effort right now. Under heavy pressure from all parts of the world for men and equipment and planes, Washington is faced with baffling decisions. But in the long run, it is Germany that must be knocked out and she should be put out of the way first.

A traditional second front in Europe will be a costly venture. Airpower can do the job expeditiously with minimum loss of lives. England provides the closest base we have to any of the Axis powers. We should use it. Let's concentrate on the one major objective while the time is ripe.

## Some Is and Some Ain't

WE'RE FOR calling an armistice on the word "blast" in newspaper headlines. To the copyreader apparently every RAF raid over Germany "blasts" cities, industrial areas, and

targets, whether the raid consist of six planes or a thousand. The net result is a misleading picture to the layman who must visualize whole areas being blown to bits every night whereas most RAF raids are certainly not on any such devastating scale. In any event, the word "blast" is the most over-worked word on the news pages today and this is no time for false optimism. Heavy words should be used only for heavy attacks.

## Across the Border

THE AIRPLANE which recognizes no barriers except those created by man, is making new important commercial strides even in war. American Airlines has opened up its new war-time service to Mexico City providing another link with Latin America.

The reception shown to American Airlines by the Mexican Government would have gratified all those who want expansion of air services to all parts of the globe. No greater tribute to amicable neighborly relations could be shown than was demonstrated in the Mexican capital. Those who believe air transportation is a vital war necessity would have had their beliefs strengthened by the launching of this new service.

Certainly as far as our western hemisphere relations are concerned, adequate airline service is a war-time necessity. It strengthens hemispheric relations in a way not possible by mere gestures of commerce and friendship. An added feature of the new service is the first airway system in Mexico, it being installed by American at its own expense between the border and Mexico City, an airway long ago needed. Airports also built by American are being completed. These facilities will prove to be valuable not only during the war but after the war when air travel between the two countries should reach new heights.

## Clear the Decks

AT LONG last the Civil Aeronautics Board seems inclined to clear the decks of pending rate cases and new route hearings. At least it has enunciated a policy and has been showing more action in disposing of rate cases than heretofore. The Panagra rate decision also revealed a more intelligent and constructive attitude toward what the Board had called "excess profits," although we are not sure that the Board is going to replace the former retroactive recapture attitude with a helpful substitute. Perhaps the American Airlines decision which is due soon will give a clearer clue to the Board's long-range policies in this regard.

The reasons for clearing the decks is obvious. Post-war problems arise long before the war is actually over. The need of action and clear thinking is paramount. There is no excuse for the long delays in reaching many of the rate decisions and the industry has a right to know where it stands with regard to route applications. Mr. L. Welch Pogue has accomplished a great deal as chairman, and we hope he continues to step up the Board's pace.

## Baker Resigns CAB Post

President Roosevelt has accepted the resignation of George P. Baker as a member and vice chairman of the Civil Aeronautics Board. Baker, who had been temporarily assigned by the Board to the Office of the Quartermaster General as chief of the Requirements Division, will devote his full time to that position.

In accepting the resignation with "regret," the President said: "The advancement of civil aviation during your period of service with the Civil Aeronautics Board has been outstanding. The way in which this private industry has been helpful in the war effort is a worthwhile testimonial to you and others associated in the work."

The White House has not indicated when Baker's successor will be named.



# Bookshelf

**THE COMING BATTLE OF GERMANY**, by William B. Ziff; 280 pp.; Duell, Sloan & Pearce, Inc., 270 Madison Ave., New York City; \$2.50.

If Bill Ziff were directing the war for the Allies, he would stop thinking in terms of a 10,000,000-man Army and would concentrate on bombing Germany to defeat. He would build up an Army of 2,000,000 specialists, stress all-out production of bigger and better airplanes, and hit the Axis at the only single place that counts—Nazi industry. It is easy to agree with Ziff in these thoughts, and Ziff is to be thanked for putting another enlightening book on airpower into the hands of the layman.

When the publisher of *Flying* and other magazines is sticking to air strategy, and in relating what has happened in the air war to date, he is good reading. He is also convincing, especially when he describes the job to be done and how little we prepared for that job. When he gets into other fields, he is on the weak side, for aviation, and not world politics and world economics, is his strong forte. The book shows evidence of being hastily written and repaired as the news developed, hence it rambles in spots, but that is not a major criticism. It's better to have the book in 1942 when it can do some good than in 1944 when education is too late. There are a number of inaccuracies, mostly of minor character, such as attributing the Republic P-47 to Curtiss.

On the whole this is a good book and easy to read. It differs from de Seversky in that the picture is broader and not so weighted down by minute academic polemics. The criticism of Washington is potent but not overdone; certainly everything Ziff says in this regard is well justified. On Ziff's contention that the real battle before us is the defeat of Germany by air, one wishes he had a voice in the higher councils in the national capital. The book is not a great historic contribution, but it is fresh and timely as yesterday morning's newspaper, informative, and definitely on the main track.—W. W. P.

**AIRCRAFT ENGINE MAINTENANCE**, by Lt. James H. Suddeth, formerly maintenance engineer, Eastern Air Lines, Inc.; John Wiley & Sons, Inc., 440 4th Ave., New York, N. Y.; 370 pp.; \$2.75.

This text covers the construction and operating principles of the aircraft engine and its accessories, as well as maintenance. It is the author's belief that with a basic knowledge of construction and operating principles, the reader will find himself in an infinitely better position to cope with the individual and peculiar problems of maintenance as they present themselves.

The text is well illustrated with diagrams and photographs.

**AIRPLANE STRUCTURAL ANALYSIS AND DESIGN**, by Ernest E. Sechler, Ph.D., and Louis G. Dunn, Ph.D., associate and assistant professor respectively, at the California Institute of Technology; John Wiley and Sons, Inc., 440 4th Ave., New York, N. Y.; 400 pp.; \$4.00.

This text is one of the GALT—Guggenheim Aeronautical Laboratory, California Institute of Technology—series, based on lectures given by the staff of Cal Tech to a large number of non-aeronautical engineers in cooperation with Lockheed's expansion program. The authors present most of the recognized aircraft design criteria and include experimental evidence as to the exactness of these criteria. In the belief that a number of books already available

treat of the standard structural problems, this text is largely made up of controversial material with the hope that it will inspire research men to fill the gaps in present knowledge.

Cooperating with the authors were the Materiel Division of the U. S. Army Air Forces, the Massachusetts Institute of Technology, the NACA, and a large number of aircraft manufacturers.

**AMERICAN STANDARD DEFINITIONS OF ELECTRICAL TERMS**, sponsored by American Institute of Electrical Engineers and approved by American Standards Association and Canadian Engineering Standards Association; American Institute of Electrical Engineers, 33 W. 39th St., New York, N. Y.; 311 pp.; \$1.00.

For the first time, in this volume definitions of the important terms common to all branches of electrical engineering, as well as definitions specifically related to each of the various branches have been assembled. The compilation should prove a great aid to men engaged in electrical engineering.

Over 300 experts have contributed to the work over a 14-year period.

**TECHNIQUE OF PLYWOOD**, by Charles B. Norris; I. F. Laucks, Inc., 911 Western Ave., Seattle, Wash.; 250 pp.

This publication is a valuable contribution on the use of plywood in aircraft, as well as in building and other constructions. Tables contained are original engineering computations for determining factors of safety and performance in the use of all types of plywood. A chapter on gluing is of particular significance in view of the important applications which industry has made of this craft in recent months.

Sections deal with the strength, deformation and elastic stability of plywood sheets; elastic theory of wood and plywood; manufacture of plywood; warpage of plywood; bending, moulding and embossing of plywood.

**PLASTICS**, by J. H. DuBois, B.S., Plastics Department General Electric Co.; American Technical Society, Chicago, Ill.; 280 pp.

Written in text book form simply and clearly, this volume offers detailed physical and chemical data on all the plastics, where to use them, how to mold them, the appropriate finishes, etc.

Its value as a text in a field of rapid technical expansion is unquestionable. It may also be used as a design handbook for engineers whose work brings them up against plastic applications but whose time does not permit detailed study of the complicated chemical background behind the several classes of synthetics.

While it assumes some technical and/or practical knowledge of the field, the interested layman would find much to hold his attention.—E. J. F.

**LESSONS IN PRACTICAL ARC WELDING**, Excerpts from the complete text book *PRACTICAL ARC WELDING*; Hobart Trade School, Inc., Box EW-82, Troy, Ohio; 185 pp.; \$0.75.

Excerpts from the Operator Training Section of a virtual home study course in arc welding make up the text of this heavy paper-bound manual.

Strictly a "study" book, it contains exercises and appropriate quizzes on such points as: common joints with bare electrodes, pipe welding; welding cast



Consolidated Eagle

iron, welding light gage steel, starting and manipulating the arc, etc.

The manual appears to have a specific value to the man or woman who wishes to make arc welding his trade. Self-application to the text should be profitable.—E. J. F.

**CARE AND OPERATION OF A LATHE**; Shalton Machine Co., Inc., Chicago, Ill.; \$0.50, 103 pp.

This paper-bound volume is a manual for the beginning lathe operator. By giving him a history of the lathe, an understanding of its parts and their function, the care of the machine, etc., the book should heighten the learner's interest and reduce his learning time.

Covering all the basic points of work holding, setup, and lathe operation, plus the above, the manual highlights in detail such special techniques as tool grinding.—E. J. F.

## Obituary

### Earl A. Hecker

Earl A. Hecker, 56, TWA's express and air mail manager, and veteran rail and air express authority, died suddenly in Research Hospital, Kansas City, on Sept. 1.

Mr. Hecker had been associated with the express business since 1907 when he entered the service of Wells, Fargo & Co. at Jamestown, N. Y., as a driver. He advanced through the ranks and in 1932 became superintendent of organiza-

tion for Railway Express Agency. In March, 1936, he joined TWA in Kansas City as western division manager of General Air Express and a few months later was elevated to general manager of that agency. He became express manager of TWA in September, 1937, and later assumed supervision of air mail activities as well.

### Capt. Carthy

Capt. William Henry Carthy, who served in France in the first World War as an expert in the handling of balloons and other lighter-than-air craft, died in New York Aug. 25, at the age of 50. On returning from the war he taught for a time at the school of balloonists at Lee Hall, Va., and organized and was the first president of the Balloon Officers Association of the World War.

### Charles Conrad

Charles B. Conrad, 24, ticket agent for American Airlines, Inc., Memphis, died Aug. 27 of an accidental gunshot wound in the stomach received Aug. 21. Reports state that Conrad and E. N. Long, 35, were comparing guns in the ticket office at the Memphis airport and Long's gun went off when he demonstrated a quick draw.



# Flying Work Horses Must Shed Weight

**Future Airlines Will be Operating on 24-Hour Clock, With Every Ounce Needed for Payload**

By E. J. FOLEY

**T**HE day when an airplane is something to awe-inspire the public is about over. From here on in, the air transport aircraft assumes the role of a high-speed work horse—a real transportation vehicle of the air.

We must streamline our thinking and our work in recognition of this fact. The manufacturer's weight control engineers must develop further a trend of thought that has been evident to a greater or lesser degree in their work in the past. They must remember that the aircraft proper is that one half of the weight empty which they control. It is made up of those details, sub-assemblies, assemblies and components that are conceived and fabricated by the same company that pays their salaries.

These components make up that part of transport aircraft on which the manufacturer's reputation depends. In short, complaints or compliments that Lockheed, Douglas, Boeing, Sikorsky and the rest receive are directed to that half of the weight empty—the airplane proper.

Air transport operation builds an impressive service record on any type of aircraft. Ten hours a day highlights the bracket that cracks, the steel bolt that chafes the aluminum alloy bell crank, the wood molding that splits at every installation, etc.

Now we're moving to an era that promises a greater utilization of aircraft. Planes will have bigger jobs to do and with the day's length fixed at 24 hours, that means less time between jobs.

Minimizing service time demands a dual contribution if ultimate success is to be attained. The operator must cut corners without lessening in the least his appropriately high standards of safety and workmanship. He must adapt mass production techniques and equipment to aircraft maintenance in so far as is possible. Here is the operator's half of the job.

On the other hand, the manufacturer must, in realizing his responsibility, engineer his product to offer the best possible maintenance features. A working airplane must be the net result. A simple aircraft proper, ruggedly constructed, will contribute much to our work horse.

The weight control engineer assumes a more important, even if somewhat changed, role in the new scheme of things. He must sharpen his concept of maintenance and service life as a design criterion. He will have to recognize that design loads and service loads may agree in amplitude and even direction, but the elements of frequency and vibration are the killing variables.

Surely the bracket which cracked would carry four or five of the

accessory for which it was designed. Light gage metal, generously holed, it was designed as light as possible to carry the load with ample safety factor. But sitting there dancing from engine vibration hour after hour, it failed. It might well have been a failure from design to a load without enough thought to service.

There was no need for worry about the steel bolt and aluminum alloy bell crank combination. Bearing and shear checked okay. Why then add the weight of a steel bushing in the bell crank? Because the omission of it means a maintenance headache in the bell crank wear from service rubbing. This is something that does not show up in the form of shear or bearing.

The molding was decorative, carried no load, so it was made light—from wood. Each time wall paneling was changed, the molding had to be removed and reinstalled. It was light but not serviceable, it split damnably often; a substitute of equal weight but better service characteristics might have been found. It was not—so we had a detail light in weight, heavy in service cost. The net economy? Questionable.

## Abuse is Factor

Abuse, inevitable in a working vehicle, is another factor that doesn't care about design loads, close figuring in formulae, etc. This factor will become more and more troublesome as volumes carried by the air transport operators increase.

The bracket may have been inadvertently kicked by a dozen pilots, scratched by a mechanic making a hasty check. Little abuses, accidental and unavoidable, but cumulative and costly to the operator.

Payload still is the life blood of the air transport operator. We want as much payload as we can get in every aircraft. But maintenance considerations might well dictate more secondary design from a weight standpoint than they have in the past.

The dollar value of a pound to the operator is difficult to determine. The assumptions and considerations ordinarily applied in such a computation are comprehensive but invalidated if service inadequacy in design costs hours or days in maintenance when not a single pound of payload, let alone the one saved, can be carried.

Pounds saved and the dollar value of same are directly connected in

net worth to the general utility of the saving. If we save a pound by riveting instead of bolting or by spot welding instead of riveting, let's be sure that if the rivets work loose we can replace them with rivets and if the welds break under moving regularly applied loads we can reweld.

The operator may have to steel-bush aluminum alloy parts for the sake of wear, reinforce or even shock-mount a bracket to stand vibration, replace rivets with bolts and spot welds with rivets because after assembly these processes were impractical from an accessibility standpoint.

When such replacements become cumulative over a period of aircraft operation the operator is losing money rapidly. The payload vs. time curve takes on a downward slope over and above that resulting from equipment requirements, incidental service pickup, etc. As a result of insufficient attention to service experience as a design factor, the manufacturer may be unconsciously misrepresenting the payload characteristics of the aircraft at the time of sale.

Weight saving is nullified if it is vulnerable to failure in service with attendant offsetting reinforcement. Weight saving must not be a transient factor. If it is to be of use to the operator, it must survive in near entirety for the service life of the craft.

Enough payload is already lost through governmental, passenger and flight crew requirements. We can't afford to see more thrown away.

Functional design may be the most appropriate expression for what we should achieve. When we're dreaming up the details of a transport model, it would be advisable for us, all engineering branches as well as weight control, to draw

upon the wealth of air transport experience.

The function of our design is the carriage, uninterrupted, of passengers, mail and freight. If our product is to make money for the buyer it must do the job. "Doing the job" means carrying every pound that we possibly can every minute that we can, every minute that we can. But the key word is "carrying." If we give the operator an extra ten pounds of payload, let's be sure that there are no strings. Five pounds clear is better than ten pounds with a proviso. Design to the ultimate function of the vehicle. To paraphrase, be sure the operator "gets there—first—with the most."

The functional design of an air transport aircraft may cost the manufacturer some weight and the operator some payload from that half of the weight empty which the manufacturer makes and hence controls.

This is an undesirable trend. How shall we correct it?

The Society of Aeronautical Weight Engineers with "Doc" Watson of Fleetwing, Mike Hackney of Lockheed and John Ayers are on the right track toward this solution.

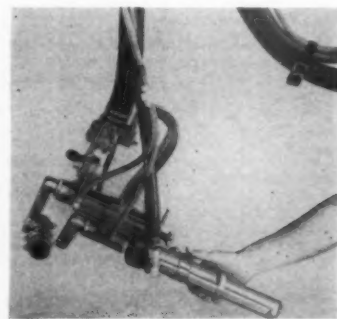
## Raise Weight Empty

The logical way—their way—is to raise the percentage of the weight empty controlled by the aircraft manufacturer, not by having the manufacturer make any greater part of the aircraft, but by educating, impressing and forcing the suppliers of purchased parts (the balance of the weight empty) to reduce their weights and hence their percentage.

It's almost pathetic to see an aircraft manufacturer maintaining a staff of fifty to a hundred weight control engineers at a six digit cost per year and then see him going into the market to purchase such evident necessities as engines, propellers, valves, electric motors, emergency equipment and radio gear to which was given not one-tenth the weight consideration devoted to his part of the design.

The education of these "accessory" suppliers to maximum weight consciousness should assist materially in overall weight reduction. It should give us a sizeable cushion to absorb all and more of the weight addition we find necessary in our functional design.

Opposing the dollar value of the pound saved, we must also think of the ultimate measure of operating effectiveness—ton miles flown per unit time. Neither of these criteria has any significance unless we fly. Design for service. The weight cost that may result we feel sure can more than be absorbed by "accessory" weight savings to be gained through education. Alertness to weight and its significance must be as much a part of the creed of the "accessory" manufacturers as it is of the airframe manufacturer.



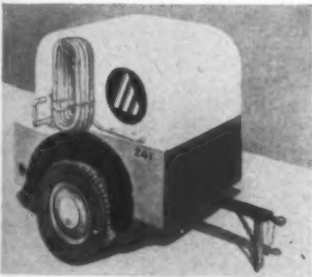
**New Gun:** To protect against metal deformation when spot welding brackets or clips to light gauge alloy steels, light welding pressures are required. Close-up shows such a gun introduced by Progressive Welder Company, 3050 E. Outer Drive, Detroit, Mich.



**Kidde's Fire Truck:** Built on a Marmon-Harrington chassis with a four wheel drive and powered with a Ford V-8 engine, a new all-purpose fire truck has been produced by Walter Kidde and Company. Apparatus includes ten 100-lb. cylinders of CO<sub>2</sub>, a 200-gallon per minute water pump, a self-contained 250 gallon water tank, foam generator, and twelve 50-lb. pails of foam powder.

### Latest Trailer-Type Water Purifier Ready

A self-contained trailer-type water purification unit that can serve as emergency fire fighting apparatus has been developed by Technicraft Engineering Co., 5610 South Soto St., Los Angeles, Calif. The unit designated as Sterozone Hydrovan, sketched here, uses ozone to burn bacteria out of contaminated water within a few minutes. Capacity for purification is 20 gallons per minute.



The Hydrovan is turned into a high-pressure fire fighting engine by a simple clutch which cuts out the Sterozone unit and engages a pump. The enclosed gas engine provides power for both units. Fire fighting water may be delivered through the 2½" hose at a 200-pound pressure and 200 g.p.m. rate. The unit is mounted on a two-wheel trailer and is equipped with 50 feet of 4½" suction hose and 400 feet of 2½" pressure hose. This gives nearly 500 feet as effective radius of action as a fire fighter.

### G.E. Announces New Ballasts for Lighting

Three new ballasts have been developed by General Electric Co., Schenectady, for fluorescent lighting in aircraft. They claim the features of compactness, light weight and efficient operation at any altitude where suitable ventilation is provided.

The first is a combination ballast and transformer for instrument lighting. It will handle four 4-watt Mazda F lamps and provides a 3-volt 10-amp power supply for rim lights from a 400-cycle 110-volt supply.

The second is an enclosed, high-power-factor ballast specially designed for fluorescent cabin lighting. The above 95% power factor available in these units permits weight reduction in the wiring required. Three types of this ballast: operate single 15 watt; operate single 20 watt, and operate two 30-watts. Third unit requires 400-cycle, 203-volt, 3-phase generator supply.

The third is a core and coil for use in limited mounting spaces. The ballast weighs only 4¼ ounces and is 2½" x 1½" x 1¼". Two types take one 15-watt and one 20-watt lamp, respectively.

### Lucite Rods Aid TWA

Piping light from navigation lights on the wing underside to the top-side, small lightweight rods of duPont's Lucite serve a dual purpose on TWA's transports.

Besides providing positive indication of the functioning of the navigation lights, they establish the wing tip position, thus aiding the pilot in night time maneuvering.



## What is an Impact Actuator?

It is an odd paradox that the *violence* of a crash landing . . . and that violence alone . . . brings into action a device to help save the plane from destruction. The device is known as an Impact Actuator. We use it to extinguish fires.

Consider the delicacy of the problem! The device must act automatically in the split seconds which separate safety from disaster. Thus it must release fire extinguishers at the exact instant of impact. Yet it is imperative that the Kidde Impact Actuator possess the *sensitivity* to distinguish between an actual crash and normal operating shocks, vibrations, and hard landings. Moreover, the Actuator must function in a number of directions of impact!

Newly developed, the Kidde Impact Actuator meets each of these difficult specifications. The force of a crash operates an electrical switch which releases the Kidde Airplane Extinguishing System, snuffs out flames instantly.

Other uses of the Impact Actuator come to mind. It will shut off fuel lines, disconnect the plane's electrical system. It will do other jobs which can be handled by a switch or a valve.

Have you a job for the Kidde Impact Actuator? . . . a problem which it may solve? Write us. We'll try to help.

Research and Development Department of



**Walter Kidde & Company, Inc.**  
939 WEST STREET, BLOOMFIELD, NEW JERSEY



# Air Express Celebrates 15th Anniversary

## Airlines' War Cargoes Set New Records

By ERIC BRAMLEY

**R**EGULARLY scheduled air express service celebrated its 15th anniversary on Sept. 1.

The anniversary came as the country's airlines were hauling express loads undreamed of a year ago. Given a tremendous shot in the arm by the war, express business on most airlines is running at least 100% over last year, according to a survey conducted by AMERICAN AVIATION.

In addition to reporting record loads, airline expressmen point to increases in size and weight of shipments as probably the major trends. Only the size of doors and capacity of compartments limits shipments now, they say.

It was on Sept. 1, 1927 that four pioneer airlines joined with the predecessor of Railway Express Agency to offer shippers a coast-to-coast air shipping service with branches extending to Los Angeles, Dallas and Ft. Worth.

In the first full year of operation, about 17,000 shipments were carried. In the first six months of 1942, more than 677,000 shipments weighing 4,390 tons were flown on regularly scheduled flights of the 19 domestic airlines.

Shipments increased yearly beginning in 1933 as rates were decreased two-thirds and eventually speed was doubled. In 1927 a five pound package from Boston to San Francisco cost \$15; today it costs \$4.80. Transcontinental flights required 33 hrs. flying time in 1927; today 15 to 17 hrs. is the schedule.

Additionally, according to REA, frequency of plane departures and coordination of rail and air service have helped to increase volume. About 30% of all air express originates at or is destined to an off-line point or moves part way by rail.

Listed as "significant milestones" by REA are the following: August, 1934, when international air express on the Pan American Airways system was linked to the domestic air express service; February, 1936, when eight domestic airlines joined the original air express organization; January, 1940, when non-stop pick-up and delivery service was inaugurated by All American Aviation Inc., and June, 1942, when priorities were established for essential shipments.

Shipments for the year 1941 totaled 1,306,629, compared with 1,078,189 in 1940, an increase of 21.2%.

"Acceleration of the nation's war production program has served to increase the weight of individual air

### Air Express Shipments

Sept.-Dec. '27	5,160
1928	17,006
1929	12,781
1930	11,645
1931	9,074
1932	25,902
1933	68,683
1934	138,308
1935	200,222
1936	464,835
1937	625,006
1938	715,410
1939	870,806
1940	1,078,189
1941	1,306,629

express shipments," according to K. N. Merritt, REA's general sales manager. "In June, 1941, average weight of shipments was 8.8 lbs.; in June, 1942, it was 15.2 lbs. . . .

"The total weight of shipments handled in 1941 was 11,240,204 lbs. compared with 7,699,772 lbs. in 1940, an increase of 46%. In the first half of this year 8,791,635 lbs. were handled, for an increase of 90.3% over the similar 1941 period.

"The average air express charge in 1941 was \$3.28; in the first half of this year it was \$5.51."

AMERICAN AVIATION's survey showed the following:

### United

United Air Lines had a 191% gain in express in July. Since June 1, 1940, the company's express-mail-freight department has expanded from four employees into a 20-man organization, headed by C. P. Grad-

dick. UAL's net air express revenue for 1941 was \$837,686.68. By June of this year, the company had already netted revenue equal to the entire year of 1941.

Biggest express points on United are, in order, New York, Chicago, San Francisco-Oakland, Los Angeles, Cleveland and Seattle. Like rail movements, tonnage of air express is predominantly from east to west, and UAL has been studying the possibilities of adding to eastbound traffic to give better balance. Commodity studies are being made in this direction.

The administrative staff of UAL's EMF department includes Graddick, director; Russell LeBrock, general manager (on leave with the Army); Paul E. Burbank, development manager; Ellsworth L. Dare, business manager. The company has 10 EMF area offices.

### American

American Airlines carried 4,525,354 lbs. of express in the first six months of 1942, compared with 2,198,261 in the similar 1941 period, a gain of 105.86%. Pound-miles flown were 2,264,246,920 compared with 1,127,307,590, a 100.85% increase.

These increases have forced the company to establish new regional express-mail-freight offices in Boston and Dallas and to appoint an additional representative in Chicago. M. T. Stallter, express-mail-freight manager, is on leave of absence as a major in the Air Forces, serving as operations officer for the contract cargo division of the Air Transport Command. M. D. Miller is now manager of the department. Under him are superintendents of the follow-

ing areas: eastern, western, southern, central, New York, New England and Chicago.

"The trend in air express service during the past year has been an increase in the number of industrial shipments pertaining to the war production program with corresponding problems in accommodating sizes and weights of shipments which were not considered in designing present day aircraft," American states. "Constant service work is necessary with the Army and Navy, government agencies and war manufacturers in order that air express might fulfill its important mission in the movement of material."

### TWA

TWA reports that for the 12 months ended July 31, 1942, express originating at TWA stations totaled 3,418,615 lbs., against 1,610,909 lbs. for the previous 12 months, an increase of 112%. The increase for the first six months of this year, compared with a similar 1941 period, was 140.8%.

V. P. Conroy, TWA's vice president-traffic, states that "93% of the air express TWA is moving has a direct relationship with the production of war materials . . . according to the most recent analysis by the company.

"This analysis indicates 25% of the total express TWA is carrying travels on a class 4 priority, an additional 68% are war mission shipments and but 7% are miscellaneous shipments of commercial nature. Not only is the percentage of priority constantly growing, but the volume is likewise mounting rapidly."

E. A. Hecker, TWA's express manager, died Sept. 1, and the company has not announced his successor. Eastern, central and western region managers are also employed by TWA.

### Eastern

Eastern Air Lines reports that it carried 1,509,036 lbs. in the first six months of 1942, compared with 1,723,909 for the entire year of 1941. Pound-miles for the first half of this year were 1,092,510,917, compared with 1,260,106,015 for all of last year.

"As for any noteworthy trends, I would say that the major one is its wider use by all forms of industry," according to E. E. Skinner, EAL air mail and express manager. "Another major trend, I think, is the increase in weight and size of shipments being handled. Small size packages weighing only a pound or two used to constitute our traffic. Now we get shipments of all weights and sizes and only the size of the cargo and cabin doors, and the capacity of our compartments, prevents real big stuff from being carried."

Skinner is the only EAL employee devoting full time to express. Everybody in the field and city offices include air express activities as part

(Turn to page 40)



**Don't Shoot, McDuff:** United Air Lines says this picture shows a "typical shipment ceremony" of the 1927 variety, in air express' first year. From the looks of the gun-toter, the package must have been important. If it was 1942, we'd say it was sugar, or maybe some rubber.



ry.

south-  
w Eng-  
servic  
in an a-  
indus-  
to the  
th co-  
comm-  
of ship-  
lered in  
ircraft,"  
service  
e Army  
cies and  
that air  
portant  
of ma-

the 12  
12, ex-  
stations  
nst 1-  
ous 12  
c. The  
nths of  
similar

pres-  
of the  
has a  
e pre-  
ac-  
analysis

5% of  
urrying  
an ad-  
ship-  
aneous  
re. Not  
riority  
volume

express  
com-  
suc-  
estern  
ployed

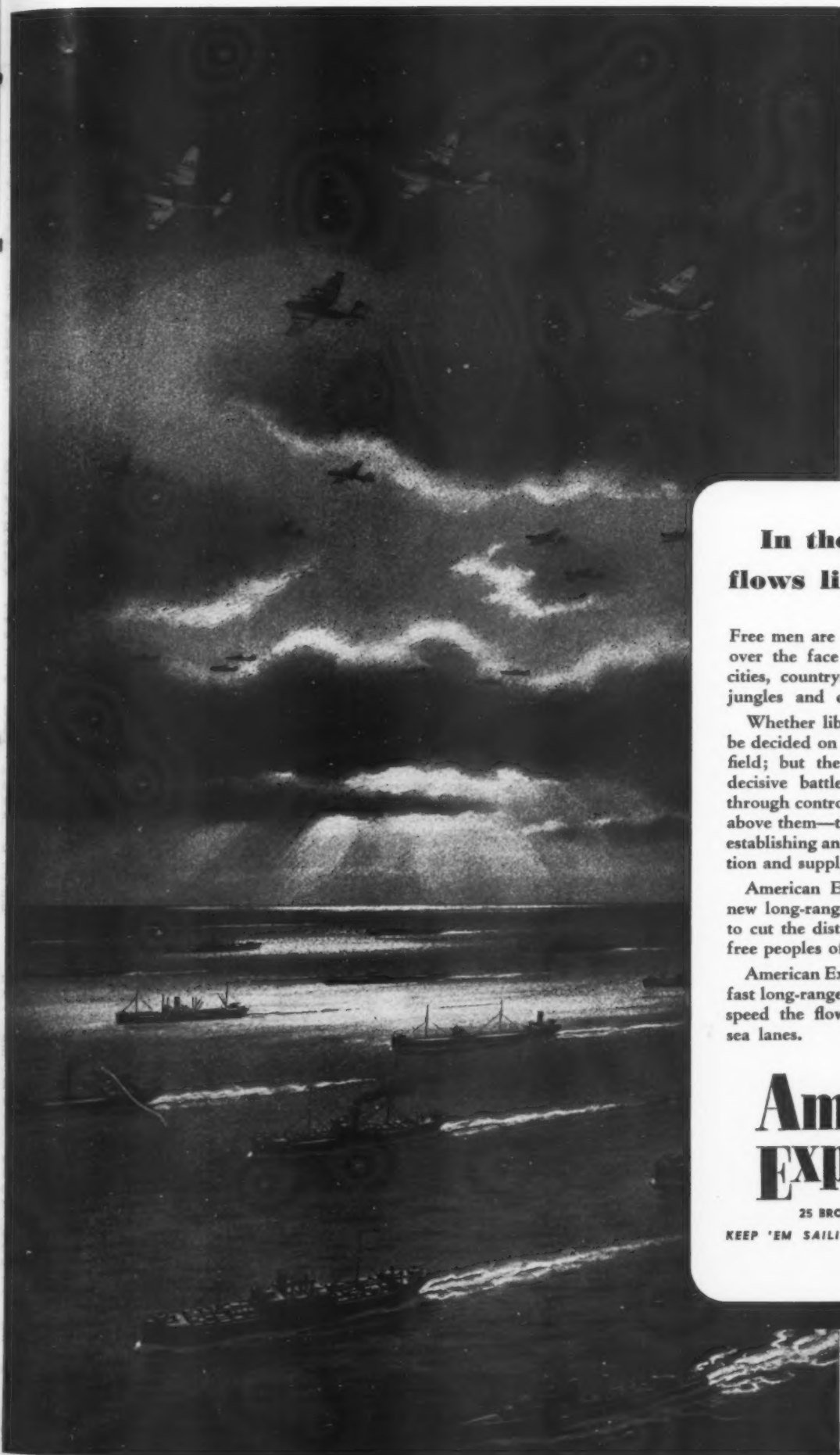
that it  
st six  
th 1-  
1941.  
of this  
pared  
year.

nds, I  
ne is  
f in-  
inner,  
nager.  
k, is  
ze of  
l size  
nd or  
raffic.  
ights  
t the  
the  
pre-  
car-

ploye  
ery-  
s in-  
part

42

YIM



## In these arteries flows life—or death!

Free men are fighting for their lives all over the face of the globe today—in cities, countrysides, mountains, deserts, jungles and countless island outposts.

Whether liberty is to live may finally be decided on some one climactic battle-field; but the power to win that last decisive battle must be built up now through control of the seas and the skies above them—the all-important means of establishing and maintaining communication and supply lines.

American Export Airlines, operating new long-range flying boats, is helping to cut the distance between the fighting free peoples of the world.

American Export Lines, operating new, fast long-range cargo ships, is helping to speed the flow of war material in the sea lanes.

# American Export *Lines Airlines*

25 BROADWAY, NEW YORK

KEEP 'EM SAILING . . . KEEP 'EM FLYING



*Wings over the world*

# "Mankind must resolve to make this The Last War"

DOCTOR HU SHIH

What kind of future are we fighting for? Last month Pan American presented the answer of John Dewey, America's great philosopher. *Here Dr. Hu Shih, Chinese Ambassador to the United States for many years—now returning to China—and one of the eminent scholars of our time, tells you what he sees—for tomorrow.*

SCIENCE AND TECHNOLOGY have made the world a physical unity. But man's backwardness in political thinking and planning has failed miserably to consolidate this physically unified world into a political and moral world-community.

It is this same political backwardness that has permitted the present unprecedented catastrophe to befall entire humanity.

We are in the midst of the greatest war in human history. And we are confident that the great forces for peace and freedom will eventually win.

But it is not enough to win this war, Mankind must resolve to make this "the Last War." Mankind and its civilization cannot stand another war of this magnitude and deadliness.

I firmly believe that if the people have the will to make this "the Last War," so shall it be!

The Will to make this "the Last War" will create a powerful demand for the ending of international anarchy and for the establishment of a new World Order which, in the words of the Atlantic Charter, "will afford to all nations the means of dwelling in safety within their own boundaries."

Mankind must demand a World Order which will afford to all nations, great or small, the Freedom from Fear of Aggression—the most essential of the "Four Freedoms,"—without which the other three Freedoms can never be secure.

We must demand, therefore, that the peace which will come after this war should at least provide:

- (1) a legally organized world order in which international disputes are to be settled by orderly processes;
- (2) an internationally organized world police force for the effective maintenance of peace and enforcement of law and order; and
- (3) a judicious international control of the world's strategic mineral resources for the dual purpose of insuring their equitable use for the economic well-being of mankind, and effectively preventing aggressive arming of individual nations.

All of us must learn the plain lesson of history that law and order and peace never mean the absence of force, but are always dependent upon organized force for effective enforcement.

This shall be "the Last War" only if we can organize the world's economic and military power to make recurrence of aggressive wars impossible.

Hu Shih 胡適

AS LONG AS 1937, Dr. Hu Shih flew from Hankow, China, to Hongkong, where the Pan American Trans-Pacific Clippers took him to San Francisco. The journey lasted 7 days, but actual flying time from Hankow to San Francisco was only 80 hours.

Steadily since that time, five years ago, aviation has made tremendous advances. Very soon after the war is over, it will be possible for the average American and his family to board a Clipper and spend their two weeks' vacation in China . . . or Brazil, or Russia or Egypt, or any other distant part of the globe.

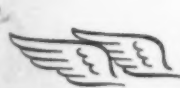
Tomorrow's air transport will make that possible. Pan American Airways, which in 14 years and 120 million

miles of operation has already blazed air transport service to 68 foreign lands, confidently looks forward to placing superb global passenger and cargo service within reach of common man.

This belief is based on technological research and equipment improvements constantly pursued by Pan American's veteran personnel. Its realization will be a signal contribution to Dr. Hu Shih's better world.

Today, of course, everything that Pan American can offer—experience and trained personnel, transport operations and facilities—has been placed at the disposal of the governmental and military services of the United States—for the duration.

Pan American World Airways System



## PAN AMERICAN CLIPPERS



# CAB to Study Wartime Air Transport Needs; Sets Up Research Division

## Reveals Plans In Data Sent To Sen. George

A STUDY of war-time air transport needs, exclusive of military demands, will be undertaken by the Civil Aeronautics Board which has revealed the formation of a research division to handle such studies and problems.

The CAB explained its proposed study in a supplemental answer to Sen. Walter F. George (D. Ga.), who had requested information on what action the Board has taken in respect to air transport developments since 1938, and for the future.

As in the original response to Sen. George, submitted several months ago, the supplemental answer defended the Board's past actions, claiming that under the Civil Aeronautics Act the Board has not had the power to build up a vast transport fleet exclusively for war purposes.

The Board admitted that it failed to foresee the part air transport would play in the war, but added that all other government agencies—including the Army and the Navy—were guilty of the same failure.

Revealing the proposed study, CAB said: "It is now obvious that long-range plans should be made which place appropriate emphasis upon the production of aircraft, the training of the technical and expert personnel required to operate them, and the training of the organization essential to perform the necessary air transport service by our nation in time of war but, of course, excluding any purely military air transport needs."

### Will Tell Congress

"The Board plans to give careful consideration to these war-time air transport needs in the light of all relevant facts. After reaching its conclusion as to how this new, large and vital problem should be met in the future the Board will make that conclusion known to Congress for its consideration. No substantial production of aircraft, in addition to that which is programmed for some time in the future for the Army and Navy could be undertaken at the present time. It is nevertheless clear that any long-range program will require months and possibly years to become fully effective."

It is learned that CAB has not yet selected a director for its research division.

In answer to a query from Sen. George as to what CAB anticipated in the way of need for expansion of transport equipment in the next three or four years, CAB said:



**Sex and Sextant:** The usually-conservative Pan American Airways public relations department has blossomed forth with this eye-catching photo of Miss Marion Small, 18-year-old stenographer who has completed the Army Air Forces celestial navigation course in the PAA navigation section "just to prove a girl could do it." Eye-catching Miss Small is shown here sighting a sextant. (After all, there had to be some reason for taking this picture!)

"The need for expansion of air transport equipment for war purposes is at present virtually unlimited. As to the civil air transport aspect of the need, a very substantial number of aircraft in addition to those presently available could be utilized to advantage on both domestic and international routes. The availability of aircraft for civil air transportation will depend, however, upon the relative importance of increasing operations over those routes or of assigning such newly produced machines to the performance of uncertificated and unscheduled transport missions, geared directly to the war effort. Determination of such questions must depend upon the course taken by the war, and prophecy seems impracticable."

"If one could assume that the war would not interfere with or impede the normal growth of civil air transportation, the extent of this growth in the succeeding four years could be predicted with reasonable confidence. For the 12 months ended Apr. 30, 1942, the total number of revenue passenger miles flown by domestic air carriers was slightly in excess of 1,500,000,000."

"If to this figure we were to relate the 40% rate of increase which passenger traffic has shown over the past three years, six billion revenue passenger miles on domestic airlines in 1946 would appear to be a conservative forecast."

"Assuming, in addition, average annual operations of 400,000 miles per aircraft per year and load factors averaging 60%, aircraft capacity of 25,000 seats (some 1,200 aircraft of DC-3 size), or approximately five times the capacity of the 1941 domestic airline fleet, would be required by the domestic carriers."

"But the difficulty of relying today on an assumption of normally expected growth is apparent. One of the most important impacts of the war has been, and probably will continue to be, the uncertainty of its effect on many of the civilian needs, habits of consumption and other activities. Although we can expect more intensive utilization by new classes of users, there are many potential uses for air transportation service, otherwise important and justifiable from a commercial point of view, which will remain undeveloped for the duration."

"Notwithstanding that we can anticipate for the succeeding four years a very substantial increase in domestic air transportation, an increase probably as great as 200% or 300% above our present level, the uncertainties which are present at this time make it difficult to forecast the same rate of growth which normally would be expected had the war not intervened."

"While international air transport requirements will depend in great part upon political and economic conditions resulting from the war, it seems likely that, in the period after the war, a greatly increased percentage of intercontinental commercial travel, the bulk of first-class mail as well as express traffic in considerable increased volume, will be air-borne. It seems probable that the approximately 110,000,000 passenger miles flown by American flag international services during 1940 (later figures being too greatly distorted because of war conditions to be a reliable guide) will, shortly after the war's conclusion, increase at least sixfold, that mail and express traffic will increase approximately eight times, and that a fleet of aircraft, many of them machines designed expressly for long-range operation, providing an aggregate of approximately 6,000 seats, will be required."

"Development of air transportation will depend to a considerable degree upon government policy in the matter of financial support, upon the post-war political status of international air transportation and very likely upon other features of post-war settlements."

"Save in cases involving exceptional factors, the estimates presented herein assume that air transport enterprise as a whole will be self-supporting without direct financing by the government. Volume of service, as well as number of aircraft used in conducting it, could of course be increased to any extent by appropriate increases in governmental expenditures."

## Braniff Awarded 24.83c Mail Pay

The Civil Aeronautics Board on Sept. 1 awarded Braniff Airways a system air mail rate of 24.83c per airplane mile, effective from June 1, 1942. The rate applies to average daily designated mileage of 17,812 miles.

For the period from Oct. 9, 1941 to May 31, 1942, CAB set the company's rate at 29.58c.

Rates formerly received by Braniff were: AM9, Chicago-Dallas, 17c; AM15, Oklahoma City-Amarillo, Amarillo-Dallas, Dallas-Galveston and Dallas-Brownsville, 23c, and AM50, Houston-San Antonio and Houston-Corpus Christi, 28c.

In setting the new rate, CAB said: "While the application after June 1, 1942, of the rate proposed for the future in the show cause order, will result in substantially reduced total mail compensation because of the reduction in scheduled mileage, and while certain of respondent's per-mile operating costs may be increased by reason of its inability to reduce fixed overhead expenses in proportion to the reduction in mileage, there are a number of compensatory factors which must be considered."

"The greater utilization of equipment made necessary by the diversion of equipment to military purposes should make possible certain economies in the per mile cost of operation. Also, under respondent's contracts with the government for the conduct of cargo service, it appears that many items of overhead expense will be shared by the War Dept. on an equitable basis of allocation, which will, of course, reduce the per-mile cost attributable to commercial operation."

### Need Reduced

"Moreover, any profit that may accrue to respondent from operations under such contracts will reduce its need. In addition, certain of the schedules which were discontinued were among respondent's less profitable schedules. This factor, coupled with a greater concentration of traffic and the known demand for air transportation should result in a substantial increase in non-mail revenues per-mile. The recent elimination of discounts should also result in an increase in the average yield per passenger mile."

"In the absence of evidence of the actual results of operations under the service pattern which became effective June 1, 1942, we find that the loss of mail compensation resulting from the mileage reductions will be at least offset by the factors set forth above. . . . It is recognized, of course, that actual experience under present conditions may require an early reconsideration of this rate, either upon petition by the carrier or at the Board's own initiative."

# for ... Today's LIFELINES Tomorrow's AIRLINES

**T**O MARTIN WORKERS who built her, the Navy's giant flying boat "Mars" is "just another airplane." But to a nation suddenly awake to the vital need of air transport, she is our brightest hope for frustrating enemy submarines and speeding war materials to distant battle fronts.

Today the "Mars" looms large in eyes that see millions of tons of shipping sinking beneath the waves . . . see plodding surface vessels taking months to reach fronts that may shift overnight . . . see Allied forces hampered, imperiled, by lack of supplies.

Fleets of Mars-type ships can assume much of the burden now moving so hazardingly via surface craft. Indeed, only 343 of them can do the job of a 25-ship convoy and require far less raw material to build. In addition, up to a score of naval escort vessels would be freed for other duties.

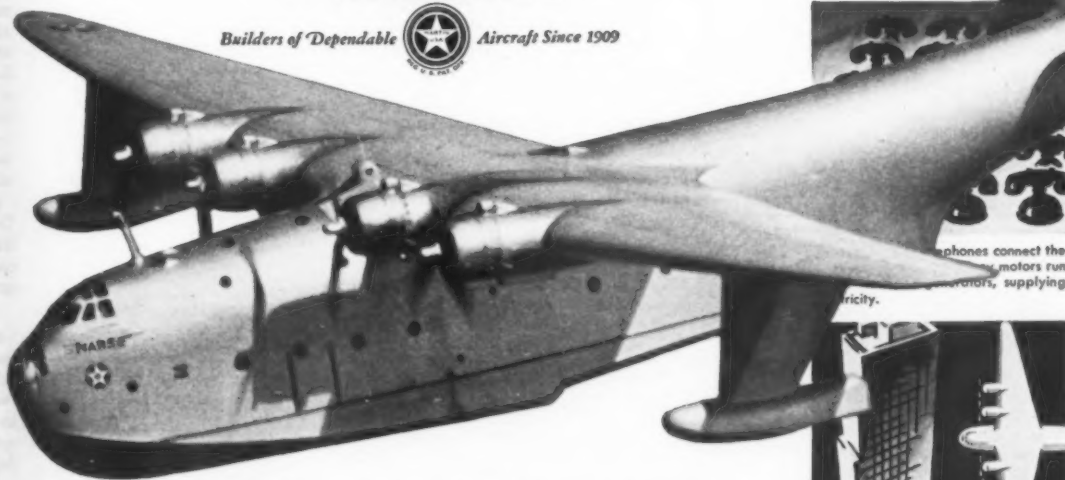
Hard-won experience, gleaned from construction of the Martin Clippers . . . the Russian Clipper . . . and the Navy's patrol bombers, is embodied in the Martin "Mars". Out of this experience, Martin is opening new vistas not only for today's lifelines, but for tomorrow's airlines.

## Martin AIRCRAFT

Builders of Dependable



Aircraft Since 1909



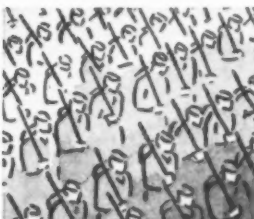
**Big?** . . . You bet the Martin "Mars" is big! But Martin has flying ships nearly twice her size all ready to build when the needs of war or peace demand it. There are giants in these days, too!



**BIG?** . . . the Martin Mars can easily fly to Europe and back, non-stop, carrying an 11-man crew and tons of payload or arms and munitions.



**BIG?** . . . the 16,665 cubic feet contained in the hull of the Mars are equivalent to the content of a 14 to 16 room house.



**BIG?** . . . 150 soldiers in full equipment can be transported by the Mars . . . or an equivalent weight in supplies.



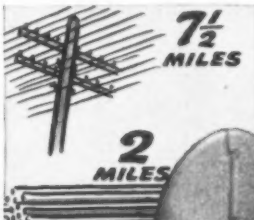
**BIG?** . . . the strength of 8000 horses, in four mighty motors, powers this great cargo ship.



**BIG?** . . . when completely fueled for flight, the Mars holds a tank-car full of gasoline.



**BIG?** . . . 24 feet from top of hull to bottom, the Mars contains two full decks.



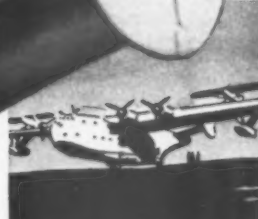
**BIG?** . . . veins and arteries of "Mars" consist of 2 miles of conduits, 7 1/2 miles of wiring.



**BIG?** . . . officers, private power, and other facilities.



phones connect the motors run, supplying electricity.



**BIG?** . . . from actual photograph, demonstrating size and strength of "Mars." Planes on wings are standard sports models.



**BIG?** . . . if the Mars were balanced on one wing, the other would reach to the top of a 20-story building.



**BIG?** . . . the bridge, or flight deck, of the Mars is larger than the entire interior of a 21-passenger airliner.





# American Airlines Opens Important International Route to Mexico City

## Dignitaries Attend Opening Ceremonies

**A**merican Airlines, Inc., launched its new airline service to Mexico City Sept. 8, preceded by special flights from New York and Los Angeles carrying government officials, directors of the company and other dignitaries.

The special parties were formally entertained by the Mexican government and received in the Presidential Palace by President Avila Camacho, who welcomed the company into the country in the interests of international friendship.

Throughout the special trip, the unity of three nations—Mexico, the U. S. and Canada—was stressed. Bands played the national anthems of the three countries, and the Hon. James A. Mackinnon, Minister of Trade and Commerce of Canada, was given special attention.

The New York plane arrived in Fort Worth, Texas, on the evening of Sept. 4 and those on board were

entertained by Amon Carter, Fort Worth publisher and a director of American Airlines, at Mr. Carter's famous farm, Shady Oaks. A hundred civic leaders and local officials were also guests.

The Los Angeles plane reached El Paso for an overnight stop and the party was entertained locally there.

On Sept. 5 both planes flew separate routes to Monterrey, Mexico, 135 miles south of the border town of Laredo, arriving at noon. Two plane loads of Mexican officials, aviation leaders and official representatives of the government, arrived about the same time. The new airport, equipped with paved runways and an administration building, was dedicated. That evening a banquet with about 300 attending was held in the city at which speeches were made by American and Mexican officials.

### 3 Flags Raised

On Sunday morning, Sept. 6, all four planes took off at 15-minute intervals for Mexico City, flying over two emergency fields almost completed by American. At the Mexico City airport welcoming ceremonies were held with the flags of the three countries raised while the respective national anthems were being played. A large crowd was present.

Dinner was held at the Mexico City Country Club at which an official of the foreign office formally welcomed American Airlines to the country. That evening a banquet was held at El Patio.

Monday morning, Sept. 7, the party was received by the American Ambassador, George Messersmith, and then proceeded to the Presidential palace. President Camacho not only received each member of the party but had his photograph taken with the group. Following this, the party proceeded to the offices of the Federal District and were received by the Governor. Medals were given to six of the party and parchment certificates of welcome to each of the others.

### Schedules

The returning planes left Mexico City at 1:30 p.m. Monday, stopping for refueling at Monterrey. The regular service began Tuesday. Planes will leave New York at 8:35 p.m., arriving in Monterrey at 10:35 a.m., and in Mexico City at 1:40 p.m. Northbound planes leave at 11 a.m., with a 2 p.m. departure from Monterrey, and arrival in New York at 6:58 a.m. The Los Angeles plane follows a similar schedule. Spanish-speaking stewardesses are on all flights. On the New York plane were: Hon. James Mackinnon, Minister of Trade and Commerce, Canada; A. N. Kemp, president of American Airlines, Inc.; Mayor Maurice Tobin of Boston; Senor Dr. Don Luis Quintanilla, Minister



### TCA Employs Women:

Trans-Canada Air Lines is using women for overhauling and repairing sensitive aircraft instruments at Stevenson Field, Winnipeg. One of these, Gladys Holliday, is shown dismantling gyros and gyro horizons prior to overhaul.

Plenipotentiary, Counselor of the Mexican Embassy, Washington; Harlee Branch, member of the Civil Aeronautics Board, Silliman Evans, Chicago and Tennessee publisher and director of American; W. Percy McDonald, chairman of the Tennessee Bureau of Aeronautics, Memphis; Mayor J. Woodall Rodgers, Dallas; Lang Wharton, Exec. V.P., First National Bank, Dallas; F. F. Florence, president, Republic National Bank, Dallas; Amon G. Carter, publisher, Fort Worth Star-Telegram and director of American; Raymond E. Buck, attorney of Fort Worth; Mayor I. N. McCreary of Fort Worth; Edgar M. Queeny, president, Monsanto Chemical Co., and director of American, St. Louis; Stanley Draper, secretary of the Oklahoma City Chamber of Commerce, and Wayne W. Parrish, editor and publisher of AMERICAN AVIATION.

From Los Angeles and intermediate points were:

Mayor Fletcher Bowron of Los Angeles; Leonard E. Reed, general manager of the Los Angeles Chamber of Commerce; Asa V. Call, president of Pacific Mutual Life Ins. Co.; Gordon Crary, partner of E. F. Hutton Co., Los Angeles; Norman Chandler, publisher, Los Angeles Times; Atholl McBean, chairman of the board, Gladding, McBean Co., San Francisco; Wayne Fisher, chairman, airport commissioners, Los Angeles; Charles A. Stauffer, chairman of board, Arizona Publishing Co., Phoenix; Edgar Goyette, Tucson Chamber of Commerce; Edgar N. Gott, V.P., Consolidated Aircraft Corp., San Diego; Harris Walthall, attorney of El Paso, and Chris P.

## Mexico Welcomes AA Service, Says Gen. Carranza

Mexico welcomes additional air service, General Alberto Salinas Carranza, chief of civil aviation, told American visitors in Mexico City at the time of the launching of the American Airlines service Sept. 5-8.

"We would welcome it if American goes on south," the General told the banquet at Monterrey, indicating he hoped American Airlines would not terminate in Mexico City but operate to the Canal Zone or farther.

In answer to queries, General Salinas said Mexico wants more airlines as long as the airport and airway facilities are owned and operated by Mexican companies. He indicated there were numerous opportunities available, especially in regard to internal services.

Fox, general manager of the El Paso Chamber of Commerce.

O. M. Mosier, vice president of American Airlines, who represented the company in the early negotiations in Mexico, was ill in New York and unable to make the trip. Among those from the company present were Hollis Thompson, v.p. of American at Los Angeles, who has been supervising the project for the past three months in Mexico City; Charles A. Rheinstrom, vice president in charge of sales, E. M. Saunders Jr., of the sales department, and others.

Prominent in the ceremonies were Erby E. Swift, president of American Airlines de Mexico, S. A.; Senator Franco Urias, vice president of the Mexican company; and General Alberto Salinas Carranza, director of civil aviation of Mexico. Radio equipment for the airway has not yet been received but will be installed as soon as it is available. Clark Kee, airport engineer for American, has been in charge of airport construction. The route goes directly south from Laredo skirting the mountains most of the way before going "over the hump" into Mexico City, which is about 7500 feet altitude. The same general route is being flown by the Pan American Airways Mexican subsidiary, CMA, as far north as Neuva Laredo on the border.

American has opened traffic offices in Mexico City with Stanley King as traffic head for Mexico.

### Spencer Joins TWA

Dr. Francis A. Spencer, economist for the Civil Aeronautics Board, has resigned to join TWA's Intercontinental Division as a second officer. Dr. Spencer is the author of the recent book *Air Mail Payment and the Government*. He recently submitted a report to CAB urging that the smaller airlines be encouraged to merge with each other or with larger companies, and that the latter be allowed to continue their growth.

## OPPORTUNITY

An  
Aviation Enterprise  
10 Years in  
Foreign Operation

★

HAS OPENING FOR:

Traffic Manager  
Operations Manager  
Public Relations  
Representative  
Maintenance Supt.

★

Applicants must be free to travel, have long experience in Aviation and definite executive ability.

★

BOX 349  
AMERICAN AVIATION  
American Building  
Washington, D. C.





# TRAINED

## MINDS AND HANDS

### *MUST LAUNCH 185,000 WAR PLANES*

The aviation industry is mustering every facility of the world's greatest industrial civilization to fulfill our President's inspiring demand for 185,000 fighting planes. But all this wealth is only a vast heap of material until skilled craftsmen can mold it into long-range bombers and swift pursuit ships and launch them against the axis. Curtiss-Wright Technical Institute takes pride in training **QUALITY** graduates for **QUANTITY** production.

**CURTISS**  **WRIGHT**  
**TECHNICAL INSTITUTE**

GRAND CENTRAL AIR TERMINAL  
GLENDALE (LOS ANGELES) CALIF.

CURTISS-WRIGHT TECHNICAL INSTITUTE

THIS TOWER OVERLOOKS AVIATION'S MOST DISTINGUISHED SCHOOL OF AERONAUTICS • FOUNDED IN 1929

# CAB Reduces Pan American's Pacific, Latin American Air Mail Compensation

## 'Excess' Profits Will Not Be Recaptured

**A**IR MAIL pay received by Pan American Airways on its Pacific and Latin American divisions was reduced by the Civil Aeronautics Board in two decisions issued last fortnight.

Although the Board found that the company had made "excess" profits, it stated that such profits would not be recaptured.

On the Latin American routes (Brownsville to Trinidad and Miami to Buenos Aires), CAB set a rate, effective Sept. 1, 1942, of 17.83c per revenue mile for the sys-

tem. The 1941 mail rate for these routes was 81.99c, under which the company received about \$6,910,000 for the transportation of U. S. mail during the year.

For the Pacific, the rate set covers only the pre-war period. For its routes from San Francisco to Hong Kong and Singapore and from San Francisco to Auckland, N. Z., CAB set a rate of \$2.0021 per airplane mile flown in each direction. The rate covers the period from Nov. 1, 1940 to Dec. 13, 1941. In addition to this rate, CAB gave PAA \$3.1112 per mile for the San Francisco-Auckland route for the period from July 1, 1940 to Oct. 31, 1940.

Under the new Latin American rates, CAB estimated that PAA will receive \$1,771,000 for the transportation of U. S. mail for the year started Sept. 1, 1942. In the future, the carrier will receive payment direct from foreign governments for the transportation of foreign mail which will amount to an esti-

mated \$1,773,000, so the total cut in PAA U. S. mail pay will be approximately \$3,366,000.

The Board pointed out that increased war traffic in express, mail and passengers was resulting in constant heavy pay loads on PAA's Latin American divisions. During the pendency of the rate proceeding, according to CAB, the company earned excess profits of about \$4,356,000 on an average investment of about \$8,442,000. These profits will not be recaptured.

Instead, as in the recent Pan American-Grace decision, CAB expects the carrier to place certain restrictions on the use of such earnings found to be excessive, emphasizing that these funds should be used to serve and develop public air transportation and should not be devoted to the personal interest of the stockholders through payment of dividends.

Accordingly, CAB suggested that in addition to maintaining its capital stock account, PAA establish a spe-

cial reserve account to which shall be credited an amount equal to the excess earnings, or transfer such earnings to the capital account, or a combination of both.

Beginning Sept. 1, 1942, CAB found that the carrier had a recognized investment of \$14,204,895 and indicated that reasonable earnings on this amount under present war conditions will be \$1,420,490 per year after payment of federal taxes.

In establishing the Pacific rate, CAB said it considered PAA's north Pacific and south Pacific routes as one system. From Nov. 1, 1940 to Dec. 13, 1941, CAB found that the company's average investment for the combined Pacific services was \$7,318,645 from which the carrier realized a profit of \$961,324 or 13.1% of its average investment, after federal taxes, or 11.7% on an annual basis.

The new \$2.0021 Pacific rate was lower than the old rate of \$3.35, but the difference in compensation will not be subjected to recapture. Any resulting excess from the fixing of the new rate will instead be applied to the services on the south Pacific and certain uncompensated services in the north Pacific, CAB said.

It added that it hopes in the near future to issue its opinion and order fixing rates for the period subsequent to Dec. 13, 1941.

## W A C O depend on Continental Red Seal Engines

Waco's husky CPTP trainers can take the manhandling and gruelling workouts in training programs. They are reliable—safe—maneuverable, and at all times have trustworthy Continental Red Seal Power to depend upon.



The "Grasshoppers" also depend on Continental Red Seal Power for performance, economy and long life.

# Continental Motors Corporation

Aircraft Engine Division  
MUSKEGON, MICHIGAN



## "KNOW-HOW" MAN AT WORK

**T**HE tires on one model were literally burning up from heat generated by the brakes — 400° at the rim. Sure, the wheel and brake assembly could be redesigned on newer models but what about the hundreds of planes in service? Rubber was being wasted, and time lost in needless tire replacements.

The local U. S. Airplane Tire Field Engineer was asked to find a solution. He went to the airfields and studied the landing and taxiing conditions. He checked with the company engineers and made his recommendation to the

United States Rubber Company. Result: a special heat resisting rayon tire and fabric-base tube that solved the annoying problem.

This is routine work for members of the U. S. Field Engineering and Service Department—the only department of its kind in the tire industry, more important now than ever after 15 years of experience in helping make tires last longer.

Wherever you are, whatever your tire problem, there is a U. S. Field Engineer near you who can help you solve it on the job, and right now. Use him!



### ONLY "U. S." HAS THESE EXTRAS

- 1 **TEMPERED RUBBER TREAD**—A tougher, scuff- and heat-resistant tread compound for airplane tires.
- 2 **SAFETY BONDED RAYON CORD**—A lighter, more resilient, airplane tire material with tremendous impact resistance and stamina at high temperatures.
- 3 **FIELD AIRPLANE TIRE SERVICE**—A force of "U. S." field engineers in every part of the country is promptly available for engineering and technical help on tire and undercarriage problems.
- 4 **"U. S." ICE GRIP TREAD**—A tread of revolutionary design and performance for snow- and ice-covered landing surfaces.
- 5 **STATIC GROUND CONSTRUCTION**—Conductive rubber construction grounds static electrical charges upon contact with the ground. This safety feature is available in every U. S. Royal Airplane Tire.

RAYON IN EVERY U. S. TIRE — A U. S. TIRE FOR EVERY PLANE



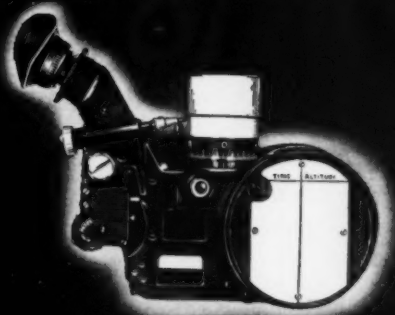
# UNITED STATES RUBBER COMPANY

AIRPLANE TIRE DEPARTMENT • 6600 E. JEFFERSON AVE. • DETROIT, MICHIGAN





## Star Gazer OF "THE INVISIBLE CREW"



On board the first Pan-American Clipper to span the Pacific was an Octant, appropriately bearing the name Pioneer. Today, Pioneer Octants fly with all the Clippers; and with our great service airplanes that cover vast stretches of water on regular and special missions. For at sea, or over uncharted territory, the Pioneer Octant gives the navigator his only possible 'fix'—through measuring the angular altitude of a celestial body. Like the Octant which helps our navigators to "shoot the stars", the other Pioneer precision Navigation Instruments help our flying Americans to keep our star of victory in the ascendancy.

Products of the Pioneer Instrument Division are important members of "The Invisible Crew", which includes the precision instruments and equipment built by 15 Bendix Divisions, serving with our fighting crews on every front.

THE INVISIBLE CREW

Precision

Equipment by

# Bendix

AVIATION CORPORATION

PIONEER INSTRUMENT DIVISION

Ricke  
Cr  
has  
Capt  
Jers  
rect  
cand  
"v  
self  
day  
ciate  
to t  
the  
tions  
fight  
enba

Wilso

Gill R  
National  
announc  
awards  
erally c  
outstand  
made un  
mittee  
pients o  
Wilson  
of the g  
It inclu  
aviation  
nautical  
Air Tra  
stitute o  
and the  
"The  
lier Tro  
hands o  
that the  
ment w  
sented  
tained."

The 15  
Lieut.  
Lawrence  
P. McCr  
George L  
L. Martin  
F. Heger  
Juan T.  
Armstrong  
the May  
Sanford  
Wai. Les  
Gorrell,  
P. Reddi  
A me  
to be h

CNAC

Press  
of the ir  
air trans  
between  
only 225  
border,  
supply  
western  
The 8  
ated by  
Corp.,  
which p  
dispatch  
to the b  
The C  
tion Co  
China's  
ports sa  
sonnel  
cret.

Amer

## Statistics

### Rickenbacker Backs Wilson

Capt. Eddie Rickenbacker has pledged his support to Capt. Gill Robb Wilson, New Jersey's State Aviation Director, who is a Republican candidate for U. S. Senator.

"We need men like yourself in the government today who realize and appreciate the value of aviation to this country, who have the strength of their convictions, and who are ready to fight for their cause," Rickenbacker wrote Wilson.

### Wilson Names 1942

#### Collier Committee

Gill Robb Wilson, president of the National Aeronautic Association, announced Aug. 29 that future awards of the Collier Trophy, generally conceded to be the nation's outstanding aviation trophy, will be made under a new policy by a committee including all previous recipients of the prize.

Wilson has named the personnel of the group to award the 1942 cup. It includes representatives of four aviation organizations: the Aeronautical Chamber of Commerce, the Air Transport Association, the Institute of the Aeronautical Sciences, and the NAA.

"The future awarding of the Collier Trophy has been placed in the hands of the previous recipients so that the high standard of achievement which the award has represented in the past can be maintained," Wilson said.

The 1942 committee is:

Lieut. Gen. H. H. Arnold; Charles A. Lawrence, Clarence M. Young, William P. McCracken, George Christopher, Dr. George Lewis, Harold F. Pitcairn, Glenn L. Martin, Frank W. Caldwell, Col. Alvin F. Hegenberger, Donald W. Douglas, Juan T. Trippe, Lieut. Col. Harry G. Armstrong, Drs. Booth and Lovelace of the Mayo Clinic, Howard Hughes, Dr. Sanford A. Moss, Col. John H. Jouett, Maj. Lester D. Gardner, Col. Edgar S. Gorrell, William R. Enyart, and William P. Redding.

A meeting of the entire group is to be held soon.

### CNAC Opens New

#### Airline in China

Press services late in August told of the inauguration of a commercial air transport and passenger service between Chungking and Lanchow, only 225 miles from the Mongolian border, thus opening up a new vital supply route over China's northwestern provinces.

The 800-mile route is being operated by China National Aviation Corp., a Pan American affiliate, which plans, according to the press dispatches, to push the route further to the borders of India and Russia.

The Chinese-owned Eurasia Aviation Corp. also is expanding in China's northwestern provinces, reports said, but the size of its personnel and equipment remains secret.

**Braniff Airways** flew 35% more passenger miles, 63% more mail and 116% more express in the first half of 1942 than in the same period of 1941, even though the Army now has more than half its planes and many personnel. Detailed figures with those for the same period of 1941 in parentheses, follow: revenue passenger miles 26,162,001 (19,382,972), up 35%; revenue passengers 81,504 (65,194), up 25%; pounds express 431,542 (119,679), up 116%; express pound miles 183,643,961 (87,439,659), up 110%; pounds mail 1,386,958 (895,605), up 55%, and mail pound miles 485,831,815 (297,270,357), up 63%.

**Service to Wichita Falls, Texas,** was resumed Sept. 1, Braniff Airways announced. This service has not been scheduled since March.

**United Air Lines** August traffic was 26,788,000 revenue passenger miles, up 16% over July's 24,876,652, compared with 32,859,813 in August 1941. Revenue plane miles were 1,775,730, against 2,587,498 a year ago.

**Northwest Airlines** in July flew 243,926 pounds of mail and 209,169,046 pound miles, compared to 224,544 pounds in June and 188,132,712 pound miles.

**Canadian air carriers** carried 17,689 revenue passengers in March, against 12,124 in March, 1941, the Transportation and Public Utilities Branch announced from Ottawa. While freight decreased to 980,246

pounds from 1,451,005 in March 1941, mail went up from 292,199 to 391,995 pounds. Revenues of licensed companies improved from \$712,927 to \$870,243, but expenses increased from \$656,779 to \$843,183. During the same period, average revenue miles per hour went from 131 to 135; revenue passengers from 3.5 to 4.8 per aircraft mile.

**United Air Lines** in July flew 25,218,400 revenue passenger miles, despite turning over certain equipment to the Army. This figure was within 17% of the revenue passenger miles flown in July, 1941, when the total was 30,446,756. For the first seven months of this year, UAL flew 17% more revenue passenger miles than in the corresponding period of 1941, the figures being 162,866,541 against 139,115,611.

**Pan American Airways'** eastern division, during the last reported 30-day period, showed an increase of 62% in miles flown over the same 1941 period, the figures being 718,943 miles compared with 444,147. During the 30 days, PAA carried 8,792 passengers, 2,400 of whom traveled the West Indies routes to and from San Juan.

**Trans-Canada Air Lines** in June carried 10,317 passengers, an increase of 768 over May and of 1,663 over June, 1941. Mail for the month totaled 174,104 lbs., or 7,684 lbs. greater than the month before and 55,201 lbs. heavier than June, 1941. Express set a new record, reaching 27,406 lbs. against 22,184 in May and 16,803 in the similar month last year.

## PAA's Atlantic Mail Pay May Be Reduced

Pan American Airways has been ordered by the Civil Aeronautics Board to show cause why rates now in effect for the transportation of mail on the company's New York-Europe and New York-Bermuda routes should not be reduced.

The show cause order was not released, because it contains secret information on national defense. CAB's announcement follows:

"Under existing mail rates for the trans-Atlantic service Pan American has been receiving approximately \$21,600 per trip for a maximum load of 1,600 pounds of mail and \$4 per pound per trip for mail in excess of this amount. These rates have been paid for 2 trips per week.

"The mail rate now proposed by the CAB for all Pan American's trans-Atlantic services to Europe, including certain additional services now being operated, and for the service to Bermuda, is .44 mill per pound mile, to be effective from and after Dec. 13, 1941. There have been numerous changes in the carrier's operations, which have been substantially expanded.

"Withdrawal of surface craft from normal ocean service due to the war has resulted in greatly increasing passenger and mail loads on Pan American's Atlantic routes, the Board pointed out. This increase far exceeds that which was anticipated when the Board fixed the existing mail rates in 1939.

### Subsidy Unnecessary

"The Board found that Pan American's operations over the Atlantic have been on a commercially self-sustaining basis since Dec. 13, 1941, and the new rate proposed is therefore on a compensatory basis for service rendered because Postal subsidy is no longer necessary in view of the increase in the carrier's commercial revenues.

"Concerning the mail rates received by Pan American during the period of the pendency of this proceeding, from June 1, 1940, to Dec. 12, 1941, the Board pointed out that under these rates the carrier had realized a higher profit than that which might reasonably have been expected if a fair and reasonable rate had been fixed in the beginning, on June 1, 1940. The Board concluded, however, that it would not order a reduction in the rates paid during this period.

"This conclusion is in accord with the Board's decision, based on economic considerations and considerations of policy set forth in the Panama Mail Rate case, decided by the Board on July 30, 1942. The Board held at that time that retroactive reductions in rates requiring a refund to the Government for mail compensation paid over an extensive period of time would be inconsistent with the public interest as envisaged by the Civil Aeronautics Act.



**Vital Shipment:** Photo shows a shipment of sulfadiazine, urgently requested by the Chilean Government to check an epidemic of meningitis, arriving via Pan American-Grace Airways at Los Cerillos Airport, Santiago. On hand when the shipment arrived were (left to right) Vincent Salsilli, Panagra traffic manager; Dr. Jose Donoso, chief of the prophylactic bureau of the Chilean Health Office; Dr. Eugenio Suarez, Chilean Director General of Health, and Dr. John Janney, representative in Chile of the Rockefeller Foundation. Panagra handled two shipments of the drug, totaling 300,000 doses and weighing altogether about 1,000 pounds.

# Comfortization



## TO STEP UP PERFORMANCE WHEREVER PHYSICAL LIMITS ARE STRAINED!

**I**N THE AIR, in the factory, in the home—wherever the Fight for Freedom imposes new and greater limits on human performance—there PACIFIC-AIRMAX heating and conditioning equipment does its vital, timely job of increasing human efficiency through greater comfort.

PACIFIC-AIRMAX CORPORATION—formed through the merger of AIRMAX CORPORATION of San Diego, California, with PACIFIC GAS RADIATOR COMPANY of Huntington Park, California—now combines in one fully staffed and equipped plant complete facilities for the production of special high-altitude heating and comfortizing equipment for aircraft and a complete line of PACIFIC-AIRMAX gas heating and ventilating equipment for America's factories, training stations, cantonments and defense homes.

PACIFIC-AIRMAX engineers are developing and applying advanced design principles to wartime heating equipment that will be reflected in a new, still better and more saleable line of PACIFIC-AIRMAX equipment for peace-time uses after Victory is won.



## Express Anniversary

(Continued from page 28)

of their normal duties, the company states.

### Braniff

Braniff Airways carried 431,542 lbs. in the first half of 1942, against 199,679 in the same 1941 period, a 116% gain. Pound-miles for the two periods were 183,439,659 and 87,439,659, a 110% increase.

Compared with these increases, Braniff's passenger traffic was up 35% and mail 63%.

The company has no full-time air express representatives. Charles E. Beard, vice president-traffic, is responsible for express development.

### Western

Western Air Lines carried 713,518 lbs. in the first seven months of this year, a 59.85% gain over 446,358 lbs. in the same 1941 period. Pound-miles were 320,750,439 over 145,389,377, a 121% gain. Walter A. Lippman Jr. is the company's air express manager.

### Mid-Continent

Mid-Continent reports 93,643 lbs. carried in the year ended June 30, 1942, against 63,446 in the previous year, a 32.25% gain, while pound-

miles were 22,775,608 against 15,165,696, a 33.41% increase. The company has not assigned men to solicit air express on a full time basis.

### Delta

Delta Air Lines in the first six months of 1942 performed 47,174,444 express pound-miles, compared with 18,459,148 in the same 1941 period, a 255.6% increase. April showed the greatest total, 14,409,449 pound-miles, an increase of 614.3% over April last year. Delta has no full time men soliciting express. It reports that R. Stanley Webber, assistant to the general manager, and Oscar Bergstrom, assistant general traffic manager, are devoting considerable time to the subject.

### Colonial

Colonial Airlines states that 25,290 lbs. were transported in the second quarter of 1942, against 8,524 in 1941. Pound-miles were 7,037,458 compared with 2,438,239. Four men are engaged in part time express work.

"Because of our international problems, our air express effort to facilitate the flow of war material between the United States and Canada has taken a definite direction," Alfred M. Hudson, Colonial's general traffic manager, explains: "Our company has been successful in enlisting the cooperation of customs and express officials in obviating the normal delays inherent in international shipping."

### Penn-Central

Pennsylvania - Central Airlines, while not quoting figures, states that express poundage has increased more than 105% so far this year over 1941.

The growth of PCA's air express business has been "phenomenal," according to J. J. O'Donovan, vice president. "Already it has exceeded what we thought a few years ago to be the saturation point and it is apparent now that we are on the threshold of a tremendous and widespread acceptance of air express volume. The future is limited only by the size and quantity of airplanes that can be made available. Most certainly, such volume carriage of materials will bring about broader use of larger individual shipments at greatly reduced cost."



**Milestone:** As the 15th anniversary of air express service was observed on Sept. 1, Chicago dispatched its 1,600,000th air express shipment. C. P. Graddick (left), United Air Lines' express-mail-freight director, and P. H. Cummings, superintendent of organization, air express division of Railway Express Agency, load the anniversary shipment aboard a UAL plane.

### PAA Travel Fellowships

Pan American Airways has announced that 15 outstanding students from as many Latin American countries have been selected to receive travel fellowships to enable them to study in schools and colleges of the U. S. during the academic year of 1942-1943. Under the plan, PAA provides air transportation, and a scholarship for maintenance and tuition is given by a U. S. college or university.

### Yerex Opens Office

Lowell Yerex, Inc., who operates TACA, an extensive local airline in Central America, and British West Indies Airways in Trinidad, has opened offices in the Time & Life Building, Rockefeller Center, New York.

### Export Moves WA Office

American Export Lines and American Export Airlines have moved their Washington office to 926 Investment Building.





## Inside Story

You are looking straight down the barrel of a highly potent weapon—a Boeing Flying Fortress,\* under construction.

Here you see the way the ribs and the stiffeners, the bulkheads and the bright aluminum skin are riveted into one compact structure.

Into a Flying Fortress go more than 30,000 different parts (counting duplicates, there are several hundred thousand separate pieces of metal). Into the design, creation and swift production of these giants of the air are riveted also many different kinds of engineering.

For example: Boeing *mechanical engineers* design the jigs—intricate, hair-true forms in which Fortress parts are assembled. . . . Boeing *tool engineers* design and

adapt tools and machines to the special job of making parts in quantity production. . . .

*Production engineers* find new ways to turn out better Fortresses, faster. . . . *Structural engineers* study problems of reducing weight and increasing the strength in airplane members. . . . *Aerodynamic engineers* study problems of wing, tail, propeller and overall airplane design. . . . *Power-plant engineers* work to increase the power, speed, efficiency and altitude range of the airplane.

These and still other kinds of engineering skill go into the building of a basic Boeing airplane structure. But in order to make the Fortress a swift, efficient flying work-room for nine men on a mission, other kinds of engineering are essential: *radio, chemical, hydraulic, acoustical,*

*vibration, heating, ventilating and electrical.*

In the Boeing engineering department today, more than 2000 men are constantly at work on engineering projects. Their job is to design and help to build light metal structures of all kinds—from an airplane wing to a booster system for hydraulic brakes. And today, too, Boeing field engineers are in service wherever their Fortresses fly—in Asia, Africa, England, Australia. Their job is to help keep the big Boeings flying—high, fast, and often.

*Variety in engineering skills . . . integrity in engineering design . . . economy in production . . . long experience in research . . . these are the qualities which Boeing is building into bombers, trainers and flying boats for the air forces of the Allies.*

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS

\*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

# BOEING

st 15,165.  
company  
solicit air  
s.

first six  
47,174,444  
ared with  
il period,  
owed the  
nd-miles,  
rer April  
full time  
t reports  
sistant to  
d Oscar  
al traffic  
siderable

that 25-  
in the  
nst 8,524  
7,037,458  
our men  
express

ernational  
effort to  
material  
nd Can-  
rection,"  
l's gen-  
s: "Our  
l in en-  
customs  
ting the  
terna-

Airlines,  
states  
creased  
is year

express  
menal,"  
n, vice  
ceeded  
ars ago  
nd it is  
on the  
wide-  
express  
d only  
rplanes  
Most  
age of  
broader  
ments

operates  
line in  
West  
l, has  
k Life  
New

ce  
and  
have  
ce to

## TRANSPORT

### CAL Shifts

Robert F. Six, president of Continental Air Lines, has been commissioned as a captain in the Air Forces Air Transport Command. Sharing executive responsibilities of the company for the duration of the war will be Terrell C. Drinkwater, CAL attorney, as executive vice president; O. R. Haueter, vice president and operations manager, and Stanley R. Shatto, vice president-engineering-maintenance as new general manager for CAL's modification center.

### Panagra Launches All-Cargo Schedules in S. A. with D.C.-2's

Pan American-Grace Airways has inaugurated scheduled commercial all-cargo air service on the 1,678-mile route between Balboa, Canal Zone, and Lima, Peru, it announced late in August. It is the first such all-cargo operation to be undertaken by a U. S. international air carrier.

Although no new flight equipment has been made available, Panagra

stated that it is "nevertheless able to conduct these weekly freight operations by a thorough redistribution of existing equipment and flying personnel which will permit the allocation to cargo schedules of two Douglas DC-2 transports formerly used in domestic operations in Ecuador.

"These planes have been converted to freight-carriers by the removal of all passenger equipment. Payloads on the preliminary flights already completed averaged approximately 1450 kilos (3300 lbs.). In this way backlogs of non-priority commercial express, in many cases representing machinery, tools and commodities urgently needed in the republics on the west coast of Latin America, have already been materially reduced, while north bound a flow of valuable high-unit-cost raw materials has been established."

Panagra said manifests of the cargo flights already accomplished reveal that large quotas of machinery, spare parts, medicines and drugs, medical equipment, films, printed matter, furs and clothing, have been shipped southbound. On northbound trips it said quantities of yeast were flown to meet shortages in Ecuador and Colombia, while to the U. S. "are coming hundreds of kilos of valuable metal concentrates from the mining centers of the Andean democracies."

### New Ice Detector Devised for Planes

Details of a new electronic device to signal and measure ice forming on airplanes in flight are announced by Minneapolis-Honeywell Regulator Co., Minneapolis.

Dr. George W. Lewis, Director of Research for the National Advisory Committee for Aeronautics, asked by AMERICAN AVIATION to comment on the development, said the new device is "something we have been looking for," and added that "It is the best we have."

U. S. commercial airlines, led by Northwest Airlines, and the Army Air Forces have also initiated research on the instrument, which was made to specifications of NACA, Dr. Lewis said.

According to the manufacturer, the indicator is composed of three separate units, utilizing principles of electricity for its operation. A "pick-up plate" or sensing element is mounted on wing or plane surface where ice accretion is to be measured.

"This plate, which is very small, is set flush with the plane so as not to disturb the air foil. It contains parts which actuate the mechanism by noting the accumulation of ice. The disc is connected to an amplifier inside the wing, which in turn is connected to a power supply unit." The latter actually turns on the de-icers. The entire unit weighs less than five pounds.

"The need for accurate measurement of the accumulation of ice on plane wing surfaces has been acute since winter flying became mechanically possible.


"The new Ice Indicator will enable the pilot to turn on de-icing equipment at the exact moment it becomes most efficient.

"The instrument is the result of protracted research in company laboratories and flight tests over the worst icing territory in the U. S.

According to H. W. Sweatt, president of the manufacturing company, Karl Larson, chief engineer of Northwest Airlines, asked William J. McGoldrick, vice president in charge of the Aero Division, if it would be possible to develop an accurate indicator. Dr. Waldo Kliever was assigned the task and turned out his first indicator after six months of work.

While most aircraft are equipped with rubber de-icers, the problem in the past has been to know when to start them operating. To operate at maximum efficiency, the de-icer must be turned on when the ice can best be cracked off.

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .



Patented in the United States and other countries

**MICA INSULATED SPARK PLUGS**

**THE BG CORPORATION**

136 W. 52nd St. New York

THE CHOICE OF THE AVIATION INDUSTRY

**WORLD'S PREMIER AIRPLANE FABRIC**

**LIGHTER STRONGER SMOOTHER**

**FLIGHTEX**

SUNCOOK MILLS - 40 WORTH ST. - NEW YORK, N. Y.

Leading Manufacturers of Fabric and Tapes for the Aircraft Industry.

**FLIGHTEX FABRIC**

Export Representative: Aviation Equipment & Export, Inc., 25 Beaver St., N. Y. Cable Address: "Friguip"

### Brazil Seizes Condor Airline

The Brazilian Government on Aug. 25 took over by decree all of the equipment of the airline Servicios Aeros Condor Limitada, successor to Sindicato Condor, a subsidiary of the German Lufthansa. By decree of President Vargas, the debt of Condor, amounting to some 50,000 contos, or \$2,500,000, has been transferred to the government.

The new company took over the debt from Sindicato Condor when the latter ceased operations last year because of lack of gasoline.

Servicios Aeros Condor claims itself purely Brazilian and is said to have been gradually weeding out German personnel, including persons of German descent. But the company is still on the United States blacklist. Prospective cancellation by the Brazilian government of the debt, however, is expected to result in removal of the company from the blacklist.



**FINE AIRCRAFT ENGINES**

★ AIRCOOLED MOTORS CORP., SYRACUSE, N. Y.



## *To the armed forces*

The entire personnel of the Sperry Gyroscope Company is deeply honored in being among the first to receive the joint Army-Navy Production Award for high achievement in the production of war equipment.

We at Sperry are determined to see the job through. This recognition from our armed forces will be a continuing source of inspiration to us.



# SPERRY GYROSCOPE COMPANY, INC.

BROOKLYN, NEW YORK

ector  
anes

ic device  
forming  
announced  
Regu-

rector of  
Advisory  
s, asked  
comment  
the new  
ave been  
at "It is

led by  
e Army  
ated re-  
which  
f NACA.

facturer,  
of three  
principles  
tion. A  
element  
ne sur-  
s to be

y small,  
e so as  
It con-  
the me-  
mulation  
ed to an  
which in  
ver sup-  
ly turns  
ire unit  
ls.

measure-  
f ice on  
en acute  
ne me-

will en-  
de-icing  
ment it

result of  
company  
over the  
U. S.

t, presi-  
company,  
neer of  
William  
dent in  
on, if it  
velop an  
Waldo  
ask and  
or after

equipped  
problem  
w when  
operate  
de-icer  
the ice

ES  
I. Y.

1942



# Industry's Wartime Output Hits Total of 5¼ Billion Dollars

## Established Firms Supply Entire Plane Production

**F**IVE and one-quarter billion dollars' worth of warplanes, engines and propellers have been produced by the American aircraft manufacturing industry during the three years of World War II, Col. John H. Jouett, president of the Aeronautical Chamber of Commerce, revealed Aug. 31. This is more than eight times the total production in the United States during the ten years before the start of the war on Sept. 1, 1939.

"Production of this equipment by the old-line aircraft companies, now recognized as an industrial miracle, has sent more than 30 different types of combat aircraft into the war on all fronts, and today finds our machines waging an offensive war against the enemy over all continents and over all seas," Col. Jouett declared.

"While increasing numbers of combat planes are going to all fronts, the industry, working with the air forces of the Army and Navy, is carrying on engineering and development of new models which, with developments by our allies, will continue to keep us abreast of the enemy in both numbers and performance.

"Coming along with a very important contribution in sub-assemblies and other parts, as well as a percentage of completed engines and machines, other industries soon will swell aircraft production totals.

"Indicative of the constant acceleration of the monthly production rate is the statement by Donald Nelson that aircraft production increased in July 11% over the June output. This follows President Roosevelt's announcement that 4,000 warplanes were produced here in May, 1942."

Reporting on production and expansion by the aircraft industry since the United States entered the war on Dec. 8, 1941, Col. Jouett said that:

- (1) Plants have been increased more than 25%;
- (2) Employment in the industry has been increased by greater than 50%;
- (3) Between Pearl Harbor and July, 1942, man hours of work in the industry have been increased around 75%;
- (4) Total horse-power of engines produced has been boosted approximately 75%;
- (5) Pounds of airplanes have been increased 150% during the same period.

### 'Made in Japan'

A 14-cylinder Japanese engine taken from an airplane shot down in the Pacific war area has been shown to workers of Wright Aeronautical Corp., who were told the Japs are giving them "keen competition" in building engines which approximate their own. Company spokesmen say the 1400 hp. Mitsubishi engine, which is similar in design to the 14-cylinder Wright Cyclone, has tolerance which approximate those of the Cyclone. It was brought here for study by the Wright Engineering Research Laboratory.

## Boeing Gets First U.S. War Bond Award

Within a few weeks following the award of the Joint Army-Navy "E" for production, Boeing Aircraft Corp. has become the first company in the aircraft industry to earn the U. S. Treasury Department's Bulls-Eye and Minute Man Flags for War Bond purchases.

To obtain the Treasury award, the employees must have invested more than 10% of the entire monthly payroll of the company in war bonds. The drive began Aug. 3 and was sponsored by the company and Aero Mechanics' Union Local 751. Final figures revealed that 93.4% of Boeing employees had authorized War Bond deductions from their pay checks each month, and that workers have pledged 10.2% of their entire payroll.



**Cargo Plane Production:** Row on row of the 25-ton Curtiss Commandos are emerging from the Buffalo plants of the Curtiss-Airplane Division of Curtiss-Wright Corp., as this photo of one plant reveals. The largest twin-engine airliner type transport is being built side by side with Curtiss Kittyhawks and Warhawk fighters, shown in foreground. An Aug. 20 the Buffalo plants received the coveted Army-Navy "E" Award.

## Compromise Reached on Breeze Directors

Breeze Corporations, Inc., Newark, N. J., has announced the election of a new board of directors composed of representative candidates of two slates which have been involved in a contest over legality of proxies voted in the company's stockholders' election.

The board was seated in a compromise measure between the slates with approval of the Chancery Court of New Jersey in a move to facilitate vital war production. The action removed a receiver who has served during the litigation. Remaining legal problems will be expedited with assistance of the court.

The board is comprised of Temple N. Joyce, J. F. Lucas, J. T. Mascuch, Frank Y. McLaughlin, C. K. Pistell, Fred G. Shupp and David T. Wilentz.

## Louis Johnson Named as Consair Director

Louis A. Johnson, former Assistant Secretary of War, and A. J. Brandt, owner of the A. J. Brandt Co. of industrial engineers and president of National Tool Co., have been elected directors of Consolidated Aircraft Corp., San Diego, to fill vacancies created by the resignations of Richard W. Millar, former president of Vultee Aircraft, Inc., and F. D. Schnacke, now a member of the board of Brewster Aeronautical Corp. Another vacancy on the board has been created by the resignation of David G. Fleet, executive vice-president of Vultee.

### Hiring Relatives Pays

War Manpower Commission reports a growing trend in large aircraft plants to hire relatives of employees. This move augments personnel from groups already established in the community instead of importing entire new families. In addition, transportation difficulties are simplified when several travel to work from the same neighborhood. OCD's "car pooling" plan can be put into operation by one or two families in one block.

The commission says in the post-war period if emergency workers are released the plants still may be able to retain the real "bread winners" in each family.

## Sperry Firms Agree to Abrogate Contracts

Resulting from a complaint filed by the Attorney General's office, a consent decree has been signed restraining Sperry Corp., Sperry Gyroscope Co., Inc., and Sperry Gyroscope Co., Ltd. from carrying out terms of agreements with foreign firms.

The complaint alleged that beginning in 1931 the Sperry firms entered into a series of agreements with gyroscope and instrument manufacturers in Germany, Italy, Japan and France resulting in a division of territory intended to eliminate competition and to maintain an artificial price structure. The Sperry firms were specifically charged with violation of the Sherman Anti-Trust Act.

As a result of the agreements, the complaint said, the companies refrained from competing with each other and fixed artificial, arbitrary and unreasonable prices in the markets of the world.

A statement by R. E. Gillmore, president of Sperry Gyroscope Co., Inc., declared that in consenting to the decree Sperry did not admit the correctness of the government's contention that Sperry's foreign agreements violated the Sherman Act. He said Sperry thought it was preferable to accept the injunction rather than enter into prolonged litigation as to the extra-territorial applicability of the Sherman act.

Gillmore emphasized that the Sperry agreements had not been observed for several years and that the company's inventions were now at work for the U. S. and the United Nations.

### Employees' Booklet

One of the best booklets issued to date for new employees has been distributed by Manning, Maxwell & Moore, Inc., manufacturers. Seventy-two pages, pocket size, spiral bound, printed in colors and illustrated with drawings, the booklet answers all questions for new workers.



# What's all this talk about Altitude?

Aircraft have missions to perform at *various* altitudes.

All military aircraft are designed to give their best performance at some SPECIFIC altitude.

If it's WAY UP you are talking about, up as high as a fighting plane of any nation has ever sought or met an enemy, that's as much HOME as any other level to an Allison engine.

For the Allison engine, combined with

the turbo-supercharger, is the power that makes the Lockheed "Lightning" (shown above) the world leader at the highest altitudes at which planes fight.

And when comparing American fighting planes with foreign competition, don't forget that the American ships carry more weight because of their superior protective armor, heavier fire power, longer range and better instrumentation.

LIQUID-COOLED AIRCRAFT ENGINES

*Allison*

DIVISION OF



Pays  
ommiss-  
g trend  
ants to  
employe  
person-  
udy es-  
munity  
entire  
ddition,  
ies are  
veral  
e same  
s "car  
ut into  
r two

ree  
contracts

aint filed  
l's office  
n signed  
Sperry  
Sperry  
carrying  
with for-

that be-  
ry firms  
reements  
strument  
y, Italy,  
ng in a  
ded to  
to main-  
structure  
pecifically  
ne Sher-

reements,  
companies  
with each  
arbitrary  
in the

Billmore,  
ope Co.,  
nting to  
t admit  
nment's  
foreign  
herman  
ught it  
injunc-  
to pro-  
extra-  
e Sher-

at the  
t been  
nd that  
re now  
United

issued  
s been  
well &  
venty-  
bound,  
trated  
answers

## —MANUFACTURING—

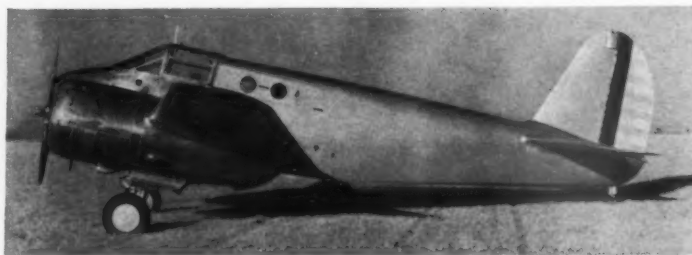
### P & W Officials Are Named at Mo. Plant

The United Aircraft Corporation of Missouri, formed by the Hartford Company for the manufacture of Pratt & Whitney aircraft engines at a new plant at Kansas City, Mo., has made appointments of top personnel for the new company. The appointments were made by H. Mansfield Horner, vice-president.

Frederick G. Dawson, who started with United Aircraft and Transport Corp. in 1929 and later was manager of United Airport at Burbank, will be general manager of the Missouri plant. Dawson was with the United Aircraft Export Corp. from 1937 to 1940, and since then has been assistant to the general manager of Pratt & Whitney Aircraft.

Leonard C. Mallett has been named assistant general manager. He joined United Aircraft in 1929 in charge of the cost department at Sikorsky Aircraft, and in 1933 was named auditor and assistant secretary of that division. In 1928 he was named division accountant of Pratt & Whitney Aircraft.

Other appointments are: Frederick Detweiler, now factory accountant at Pratt & Whitney Aircraft, who will be division accountant and assistant secretary of the Missouri corporation; and George Knaus, facility accountant at Pratt & Whitney Aircraft, who will be assistant treasurer and assistant secretary of the new company.



**All Wood Beech Trainer:** Beech Aircraft Corp. announces it is steadily increasing output of its AT-10 all-wood twin-engine bomber pilot trainer. Landing gear retracts, and installations include automatic pilot. Company says it "equals or excels comparable all-metal planes in strength and performance."

#### S. C. Airparts Expands

Southern California Airparts, founded in 1941 by S. M. Jarvis, and now engaged in sheet metal and tubular steel parts production for aircraft factories, has moved into a new plant at Glendale, Calif.

#### Cessna Gets "A"

Cessna Aircraft Co. of Wichita, Kansas, has won Class A approval of Army Air Forces for quality control in its inspection department, presented by Capt. George T. Chadwell, AAF resident representative.

#### Oil Absorbent Introduced

Accepted by leading underwriters, Quik-Sil has been added as an oil absorbent product in the line of Trojan Products and Manufacturing Co., 3130 S. Wabash Ave., Chicago.

Claimed to be five to ten times more effective than wood shavings, Quik-Sil is harmless to shoes, odorless, dustless and will not burn when oil-soaked.

Its use on floors, spray booth bottoms and any areas subject to greases, oils and solvents reduces slipping hazards, improves appearance and facilitates trucking, it is said.

### Aircraft Industry Sets Safety Record

The aviation industry was among the five safest of 31 industries studied in terms of both accident frequency and severity during 1941 according to the latest edition of Accident Facts, the National Safety Council's annual statistical yearbook.

Workers in the aviation industry suffered only 7.40 disabling injuries per 1,000 man-hours, as compared with an average of 15.39 for all 31 industries studied.

The severity of accidents in the aviation industry was only .30 days lost per 1,000 man-hours, compared with an average of 1.53 for all 31 industries. Only the tobacco industry, with a severity rate of .20, had a better record in this respect than the aircraft and aircraft parts builders. Tobacco, cement, steel and glass, in that order, had better frequency rates than aircraft.

#### Beech Buys Bonds

Walter H. Beech, president and chairman of the board of Beech Aircraft Corp., Wichita, Kansas, recently signed a check for the purchase by the company of \$1,107,475 worth of U. S. War Bonds, the bonds being bought for employees as part of their regular pay under a plan recently adopted.



# Manufacturing Personnel



Van Horn



Woolsey



Whiteside



Bertrandias



Welch



Hoefler



Wood



Allard

Formerly in sales and distribution, **W. M. Packer** has been selected head of aircraft engine relations work with A.A.F. at Packer Motor Car Co. Temporarily, Assistant Sales Manager **Lyman W. Slack** will direct the sales work.

**Webb Wilson**, formerly an executive with Smith, Barney and Co. and an officer of the Guaranty Co. of New York, and **William H. Schwebel**, have been appointed treasurer, and comptroller and secretary, respectively, of the Fairchild Engine and Airplane Corp.

**Victor E. Bertrandias**, vice-president-materiel, Douglas Aircraft Co. Inc., has gone on leave to the Army as lieutenant colonel.

At the Solar Aircraft Co., **W. E. Ottesen** has been promoted from acting assistant to assistant industrial relations manager; **R. H. Clinkscales** from assistant employment manager to personnel manager; **Parker Seitz** from personnel manager of the Iowa plant to head of the contract administration division. **C. D. Oberg** has been named head of sales in Pennsylvania, **George Bateman** placed in charge of materiel procurement and purchasing, and **Jack Lasley** appointed head of sales in the Iowa plant.

Until recently wing group leader at Curtiss-Wright Corp., Airplane Division, Buffalo, **J. M. Luther** has joined Globe Aircraft Corp. as assistant chief engineer.

**Rudolph H. Deetjen**, partner in Emanuel and Co. since 1931, and for 13 years a business associate of **Victor Emanuel**, president of Aviation Corp., has become his assistant.

Succeeding **Wayne Eddy** resigned, **W. M. Wood** has been appointed plant manager of American Propeller Corp., Toledo. He was formerly factory manager of the Propeller Division of Curtiss-Wright Corp., and general superintendent of Spicer Manufacturing Co., Toledo.

**Whiting Corp.**, Harvey, Ill., has promoted **H. W. Anderson** to vice-president in charge of the aviation division, which engineers and builds aircraft motor and propelling equipment, mechanisms for handling airplane bombs, and various aircraft testing machinery.

**Theodore A. Woolsey** has been appointed chief engineer of Fletcher Aviation Corp., Pasadena, Calif.

**James H. Davis**, of Dayton, O., has been appointed special assistant to **J. J. Johnson**, vice president of General Motors in charge of the Dayton and Eastern Aircraft divisions.

**William A. Bates**, formerly production manager in charge of the planning and materiel division, and works manager of the Long Island division, has been elected vice president in charge of all manufacturing at Brewster Aeronautical Corp.

**Frederick G. Dawson** and **Leonard C. Mallett**, with United Aircraft Corp. 13 years, have been appointed general manager and assistant general manager, respectively, at the Kansas City plant, which will build Pratt and Whitney engines.

**Gerald A. Demming** is the latest test pilot addition to the flight research staff of Bell Aircraft Corp. He was formerly a captain in a twin engine and instrument school of Dominion Skyways, Ltd., Ontario.

**Howard S. Welch**, for 20 years identified with automotive and aviation companies, has been elected president of Elsemann Megneto Corp., New York. He is also a director, and is director and president of Airward Corp.

Pratt & Whitney Aircraft division of United Aircraft Corp. has announced the appointment of **William R. Robbins** as division accountant and **James R. Seaman** as assistant treasurer and assistant secretary.

**Bartley Whiteside**, supervisor of employee training at Wright Aeronautical Corp. for the last several years, has been named superintendent in charge of production at Plant No. 7 "somewhere in New Jersey."

**Louis E. Plummer** has been named industrial training coordinator at Ryan Aeronautical Corp., San Diego.

Formal ratification of **Russell Van Horn** as treasurer and director of Brewster Aeronautical Corp. has been announced by the board of directors. His assistants will be **John Hunt Sr.**, Long Island City, and **Lucien G. La Fleur**, at Johnsville.

American Bosch Corp., Springfield, Mass., has appointed **Bruno Loeffler** as chief engineer. **W. Chester Robinson**, formerly with General Electric, has been named executive assistant to the vice president.

Brewster Aeronautical Corp. has appointed **Harry A. Loughran** as security manager of its plants, and has transferred **Robert H. Cone** as personnel manager of the Newark Division to a similar post at Johnsville. **Carl L. Shotter** succeeds Cone.

**J. S. Allard**, vice president in charge of the export sales division of Curtiss-Wright Corp., has been granted leave of absence to serve in the Army Air Forces and has reported to duty as a lieutenant colonel.

Following the resignation of **Henry L. Harvill** as head of Harvill Aircraft Die Casting Corp., **F. M. Hoefler** was elected to take over his duties with the title of vice president and general manager. **James F. McNamara**, of International Nickel Co., was elected chairman of the board of directors, and **Stanley M. Tracy**, v.p. of Driver-Harris Co., was elected chairman of the executive committee. **Col. Temple N. Joyce** was named vice president of the firm and chairman of the advisory committee.

**Roscoe J. Behan**, formerly sales manager for Lockheed Aircraft Corp. at Chicago, is now manager of the central office at Burbank for Lockheed Overseas Corp.

Denison Engineering Co., Columbus, O., announces the promotions of **Paul W. Morris** to director of sales, service and engineering; **J. T. Hively**, as manager of purchases; **George L. Avery** as manager of priorities and production requirements, and **Walter H. Hackett** as manager of personnel and public relations.

## Republic Promotes Monroe, Hargreave

Republic Aviation Corp., Farmingdale, L. I., has promoted **Morgan C. Monroe** to assistant director of industrial relations, and **Frank C. Hargreave** to personnel manager.

Before joining Republic last May as employment manager, **Monroe** had been associated with Connecticut Mutual Life Insurance Co. and Curtiss-Robertson Aircraft Co. **Hargreave** joined Republic last year after being with Lord and Taylor, New York department store, for six years.



Dawson



Maller

## AAF Glider Insignia



Army Air Forces glider pilots, many of whom are now in training, will wear this distinctive insignia. After completing their training, students receive the rating of glider pilot with flight pay. Those who enter the program as civilians receive the grade of staff sergeant upon graduation. Students showing qualities of leadership, judgment, force and discipline may be commissioned as second lieutenants.



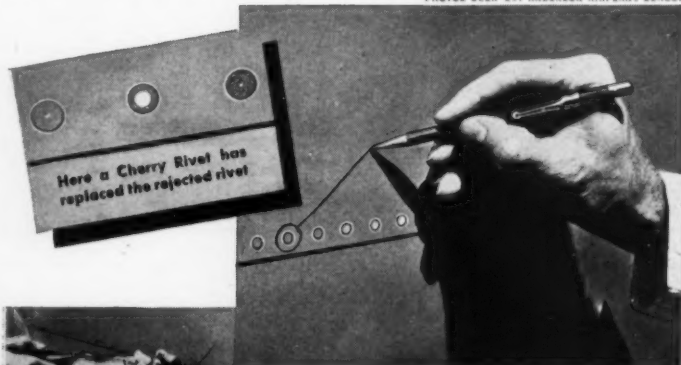
Monroe



Hargreave

# HOW TO REMOVE THE INSPECTOR'S CIRCLE

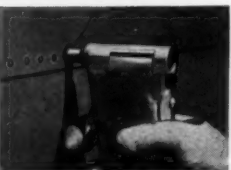
PHOTOS COURTESY ANDERSON AIRPLANE SCHOOL



**1** Remove the rejected rivet in the normal way by drilling with any drill.



**2** Insert the next size larger Cherry Blind Rivet. This may be done by placing the rivet in the hole first, as shown here, or by placing the rivet in the gun head.



**3** With gun in position, depress the trigger. The heading operation is completed instantly. The projecting mandril breaks, thereby releasing the gun.



**4** Flat-ground nippers remove the remaining portion of the pulling mandril. The job is finished in less time than it takes to show you these 4 steps.

## 4 easy steps WITH CHERRY BLIND RIVETS

The inspector's circle, indicating a rejected rivet, can be a very expensive mark unless you replace with Cherry Blind Rivets. With this patented blind rivet made of aluminum alloy there is no need to remove inner skin in order to gain access to the blind side. There's no long, awkward reaching with a bucking bar which might result in damage to some part of the structure. These costly, time-consuming steps are unnecessary because this rivet heads itself on the blind side.

### A ONE MAN RIVET

The Cherry Rivet is a true rivet through which passes a double-headed mandril. It can be applied with either hand-operated or power gun which pulls on the mandril and pushes on the rivet head. As the mandril is pulled through the rivet it forms a tulip head on the blind side, expands the shank and permanently plugs the rivet. This positive mechanical action assures the formation of a satisfactory head on the blind side.

Detailed information on Cherry Rivets and their application will be furnished on request.

From left to right, the hollow type with brazier and counter-sunk heads—the self-plugging type with both styles of heads. All are applied with either the hand or power gun.



MANUFACTURED UNDER U.S. PATENT NUMBER 2,183,543 AND OTHER PATENTS PENDING

# Cherry Rivet

Company

LOS ANGELES, CALIFORNIA

© 1942 C. R. C.

## WEST COAST REVIEW

### Test Tax Case

Los Angeles—Claim of Lockheed Aircraft Corp. for refund of \$50,000 overpayment of social security taxes by itself and indirectly its employees was heard Aug. 14 here before a referee appointed by California Unemployment Insurance Commission. Since the case involved parallel overpayments by similarly situated industry in most states, and certainly in all of the prime plants and larger accessory and parts plants in California, it commands the close interest of legal and accounting executives.

This is true despite the fact that most earnings of aircraft companies are subject to the mountainous exactions of the excess profits tax. They still feel an obligation not to pay taxes illegally imposed even though such outlays would be absorbed in their costs; and in this instance also to represent the interests of their employees. Moreover, future practice depends upon the precedents here in the making.

After the bulky transcript of the August hearing goes to the referee, he will either make a recommendation to the State Commission, or call for a continued hearing of further evidence. In the event his conclusion is adverse, the company will have a ten-day privilege of appealing for re-hearing before the Commission itself, according to Montague J. Pitt and Harry W. Moore, private tax practitioners associated with Lockheed counsel in presenting the case.

Between July 1, 1938, and June 30, 1941, it has been alleged, Lockheed and its employees paid the state and Federal governments \$48,960 in payroll taxes on that portion of their payrolls which the employees were required to invest in small tools and which therefore should not have been a part of the taxable payroll. Currently, Lockheed employees are investing \$60,000 to \$80,000 per month in tools which they procure from the company store (which sells at cost yet does pay the 3% State sales tax.) This indicates a current monthly tax overpayment by the company and its employees of \$3600 to \$4800, since social security taxes total 6%.

The employees may buy their required tools elsewhere, but habitual requisition them from the company store, sign a promise to pay, and authorize deductions of installment payments from their paychecks. The California social security law in this regard reads as follows:

"The term wages does not include the actual amount of any required or necessary business expense incurred by an individual in connection with his employment, or, in lieu of the actual amount of such expense the reasonably estimated amount allowed thereof in accordance with such rules and regulations as the Commission may adopt." (It is claimed that only 35% of all tool purchases can meet the requirements for supporting evidence of the purchase, due to being acquired from outside sources).

Both state and Federal social security laws provide the test that such deductions from taxable payroll are allowable unless they can be shown to be "actual and necessary," and unless appropriate records can be displayed by both employee and employer. All such conditions seem to be met by the purchasing procedure in use at prime aircraft plants. The paycheck stub itself segregates deductions as to tools purchased, union dues, group insurance, Federal old age benefits, state unemployment insurance, and miscellaneous charges.

Such taxes break down as follows: The employer pays 2.7% on his total payroll to State Unemployment Insurance, and 3% to Federal unemployment insurance division, a total of 4%. The employee pays 1% each to state and Federal governments, bringing the grand total to 6%. Heretofore, throughout the California aircraft industry this 6% has been paid on the total payroll without deducting for necessary employee tool purchases, although some 25,000 Lockheed employees as of today are estimated to buy between \$40 and \$50 worth of tools annually—often acquiring a new set with each promotion to a different type of work.

When such overpayment is calculated for the nine major aircraft companies on the West Coast, or for the industry nationally, it amounts to an overpayment of several hundred thousand dollars annually. If the Lockheed case "stands up," as most observers anticipate, the only bar to retroactive recovery by other companies will be the 3 and 4 year state and Federal statutes of limitations.

### Expenses for Aircraft Watchers

Fourth Fighter Command, on the Pacific Coast, has finally arranged to pay transportation and telephone costs incurred by its big corps of civilian volunteer aircraft warning workers, although heat, light and shelter costs must still be borne by local posts.

### Pacific Briefs

Lee Cameron, secretary of Interstate Aircraft and Engineering, and an early associate of the late Jerry Vultee, claims Jerry originated the term "interceptor" as applied to pursuit airplanes. . . . "The California plant expansion program is well advanced and the number of additional jobs opening up in the months ahead will be substantially smaller than in the past," says a monthly summary of business conditions issued by the research department of the Security-First National Bank in California. Only broad new fields are the synthetic rubber construction program, and Henry Kaiser. . . . The nation's first all-woman crew of plane dispatchers is in regular service at McClelland Field, Sacramento, after a month's trial. They replace men needed in the services, and are employed as civilians by the AAF. . . . On one day recently set especially for aircraft factory employment 1000 people crowded into an interviewing office at Pasadena, 75% of them women. . . . London reports the Jerry night raiders are using a delayed-action bomb which explodes when a light is flashed on it, like a politician.

— James Straight



## Mfg. Digest

CESSNA AIRCRAFT CO. reports now uses "grand piano" plywood in building twin-engined transcontinental bomber pilot training planes for AAF and RCAF; this wood is used for making wing tips, leading edges and fuselage parts. Firm executives also report that "in the very near future every second name on the payroll will be a Miss or Mrs.," explaining that about one out of four, or 65%, of employees are now women.

HAMILTON STANDARD PROPELLER Division of United Aircraft Corp., East Hartford, Conn., reports it builds about 75% of the propellers used in combat and training planes by the U. S. and Great Britain. It also announces it is painting propellers to reduce visibility.

GLENN L. MARTIN Co., Baltimore reports it is probably employing more women than any other aircraft manufacturer, now hiring them at the rate of more than 500 weekly. It has more than "7,500 women in the whole company, with over 5,000 of these busy on the actual production and assembly of planes." Most were recruited through the U. S. Employment Service. Local Defense Vocational schools, together with Johns Hopkins University, University of Maryland and the University of Baltimore, train these women, most of whom have already gone beyond the four week classes.

NORTH AMERICAN AVIATION, Inc. has received "thousands of letters, telegrams and postcards," requesting that "My name be written on a bomber that'll fly over Berlin and Tokyo." This response came after the firm announced that war bond purchasers in the country would "autograph" a B-25 bomber. It came in such volume that these signatures will be printed on scrolls for placing in the bombers.

CONTINENTAL MOTORS CORP. may soon make the R-975 Wright Whirlwind in the \$3,000,000 plant of the Guiberson Diesel Engine Co. in Texas, it is understood. No details are available on outcome of negotiations in progress, but it is believed Continental may take advantage of a discontinuance of Guiberson's radial diesel engine to enlarge production of the Wright.

GENERAL MOTORS OF CANADA, Ltd., will make fuselages for warplanes, under sub-contract from the Havilland Aircraft of Canada, Ltd., Munitions and Supply Department announced from Ottawa Aug. 21. Production is expected to start in January or February of 1943 at the Oshawa plant, where arrangements are already in progress. Women will total a large percentage of employees.

EASTERN AIRCRAFT DIV., General Motors, (New Jersey) announces its first Navy fighter plane will be assembled, from parts made by Grumman Aircraft Engineering

Corp., was tested Sept. 1. EA reports this model will be used for demonstration, and that regular production will start at a later date. EA now is hiring for a third shift with plans for 70% women at its New York plant.

HYGRADE SYLVANIA Corp. has changed its name to Sylvania Electric Products, Inc.

FIRESTONE TIRE AND RUBBER Co. received the joint Army-Navy production award Aug. 31.

WACO AIRCRAFT CO., announces AAF has let contracts to a nation-wide group of manufacturers to make troop and cargo carrying gliders, using Waco's design. Waco itself will make a considerable number of the carriers.

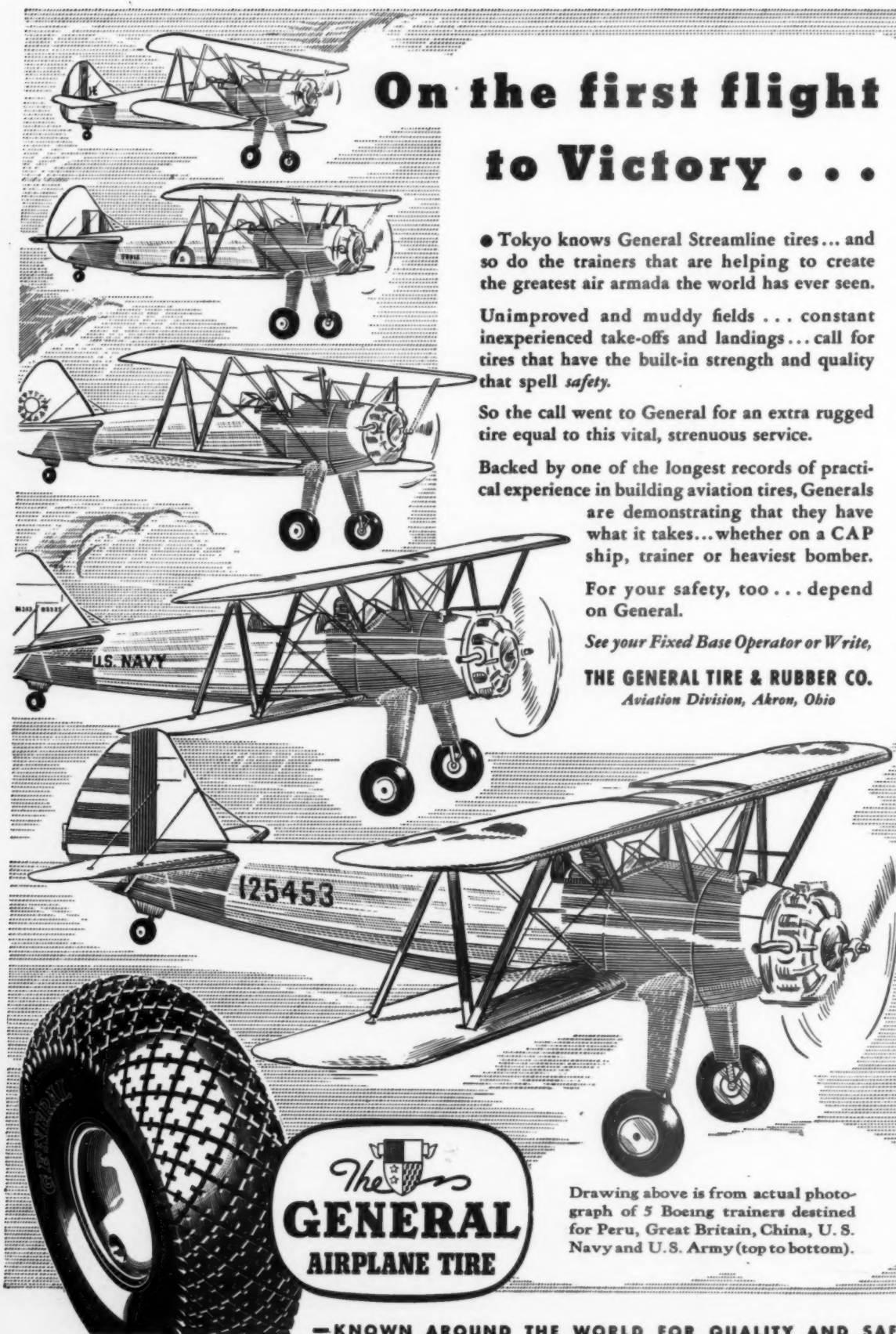


Western Air has been assigned the "Task" of flying Army Cargo planes. 17 years of airline operation have produced a highly efficient organization...ready to take on this war job...and to relieve military air men for the fighting front. In the meantime, our regular Western Air service continues to speed important mail, express and passengers for war production. Here is how you can help: 1. Travel light to conserve load capacity. 2. Plan mid-week departures, if possible. 3. Pick up your ticket at least 3 hours before plane time. 4. Don't be a "no-show." 5. Don't rely on hearsay. Phone us for official information.



General Traffic Office—510 West Sixth Street, Los Angeles, California





# On the first flight to Victory . . .

● Tokyo knows General Streamline tires... and so do the trainers that are helping to create the greatest air armada the world has ever seen.


Unimproved and muddy fields . . . constant inexperienced take-offs and landings . . . call for tires that have the built-in strength and quality that spell *safety*.

So the call went to General for an extra rugged tire equal to this vital, strenuous service.

Backed by one of the longest records of practical experience in building aviation tires, Generals are demonstrating that they have what it takes... whether on a CAP ship, trainer or heaviest bomber.

For your safety, too . . . depend on General.

*See your Fixed Base Operator or Write,*  
**THE GENERAL TIRE & RUBBER CO.**  
*Aviation Division, Akron, Ohio*



**The**  
**GENERAL**  
**AIRPLANE TIRE**

Drawing above is from actual photograph of 5 Boeing trainers destined for Peru, Great Britain, China, U. S. Navy and U.S. Army (top to bottom).

— KNOWN AROUND THE WORLD FOR QUALITY AND SAFETY

## Incorporations

**Indiana**—Articles of merger were filed by Bliss Manufacturing Co. and Delaware Aircraft Industries, Inc., in Howard county (Kokomo).

**New York**—Aeronautical Management and Construction Corp., New York City; construction of aviation and aeronautical plants; capital, \$20,000; David J. Colton, 120 Broadway, attorney.

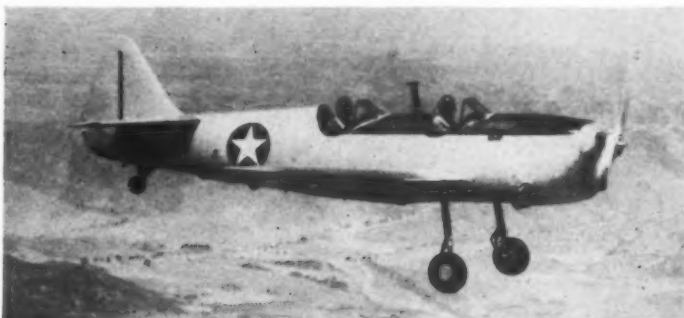
**New Jersey**—American Dirigible Co., Jersey City, "to build dirigibles for transporting freight to China and South America." Joseph Jordan, president.

## Plywood Firms Surveyed

Recent extension of the use of plywood in making aircraft parts reported by the Aviation Department of the Los Angeles County Chamber of Commerce.

As many as 50 plants in that county alone make such varied items as pilot seats, "a combination of flat and moulded plywood," and stabilizers and tabs.

Production practice on the veneer-impregnated propeller has reached a high state of competence, the chamber claims, and "production of moulded fuselage, wing sections, and other major aircraft and glider sections is now progressing on a large scale locally."



**The Ryan PT-25:** First photo of the new plastic-bonded plywood military primary trainer, a new full cantilever monoplane of advanced design described in *AMERICAN AVIATION* for Sept. 1. A notable feature is the almost complete elimination of strategic materials in military aircraft. It has been built by Ryan Aeronautical Corp., San Diego, for the Army Air Forces for cadet instruction. Company designation is the ST-4. Power is from a 185 hp. Lycoming 6-cylinder horizontal opposed aircooled engine.

### PAA Graduates 61

Maj. Gen. Harold L. George, Commanding General of the Air Transport Command, AAF, presented 61 Junior Transport Pilots in training with Pan American Air Ferries for flying multi-engined planes with their wings at graduation exercises at Miami Aug. 28. John A. Steele, operations manager of PAAF, and Carl M. Dewey, director of the school, assisted.

### Detroit Training

Nearly 50,000 Detroit high school students will be given preliminary doses of aeronautical education this fall. The two-semester course closely approximates the CAA ground course for a private pilot's license. Thirty teachers were prepared at Wayne University during the summer.

### Fairchild Agency

Cecil & Presbrey, Inc., New York, has been appointed advertising counsel to Fairchild Engine & Airplane Corp., according to Joseph E. Lowes Jr., director of advertising. Fairchild Aircraft, Ranger Aircraft Engines, Duramold Aviation Corp. and other Fairchild interests will be handled, with a new campaign to begin in the fall. John P. Kane will be account executive and L. F. Triggs the copy dept. head.

## Workers for Victory

Pioneer Parachute workers know that every parachute is a life-line of democracy. Each must be perfect . . . none must fail. These men and women attach infinite importance to every detail, working with patriotic zeal to produce a product whose performance speaks for itself. Perfection is the rule in Pioneer Parachute Company's production for victory.



**PIONEER PARACHUTE COMPANY, INC.**

MANCHESTER, CONNECTICUT, U. S. A.

CABLE ADDRESS: PIPAR, Manchester, Conn., U. S. A.

TELEPHONE: Manchester 4157



## Advertisers In this Issue

Company	Page
Adel Precision Products Corp.	4th Cover
Aircooled Motors Corps.	42
Allison Division—General Motors Corp.	45
American Export Lines Inc.	29
B. G. Corp.	42
Bell Aircraft Corp.	22
Biltmore Hotel	23
Boeing Aircraft Co.	41
Boots Aircraft Nut Corp.	8
Cherry Rivet Co.	48
Continental Motors Corp.	36
Curtiss-Wright Corp.—Airplane Div.	21
Curtiss-Wright Technical Institute	35
Dinkler Hotels Co., Inc.	20
Elastic Stop Nut Corp.	19
Electronic Laboratories, Inc.	3rd Cover
General Tire & Rubber Co.	50
Gulf Oil Corp.	5
Jacobs Aircraft Engine Co.	13
Kidde & Co. Inc., Walter	27
McDonnell Aircraft Corp.	2d Cover
Martin Co., Glenn L.	33
New Yorker, Hotel	16
Pacific Airmax Corp.	40
Pan American Airways	30-31
Pan American Navigation Service	12
Parks Air College Inc.	14
Pioneer Instrument Div.—Bendix	38
Pioneer Parachute Co.	51
Pump Engineering Service Corp.	17
Solar Aircraft Co.	46
Sperry Gyroscope Co.	43
Suncook Mills	42
United States Rubber Co.	37
Vought-Sikorsky Aircraft	18
Weatherhead Co., The	15
Western Air Lines	49
Wright Aeronautical Corp.	7

## Financial Briefs

**BOHN ALUMINUM AND BRASS Corp., Detroit:** Earnings for six months ended June 30 were \$802,297, or \$2.28 each on 352,418 shares of capital stock compared to \$817,087, or \$2.32, in similar period of 1941.

**KINNER MOTORS, Inc., Glendale, Cal.,** at year ended June 30 had net profit of \$234,188, after charges and a provision of \$635,000 for Federal income and excess profits taxes, equal to 52c a share, contrasted with net profit of \$140,788, or 31c, in the previous year.

**FAIRCHILD AVIATION Corp., Jamaica, New York,** lists net earnings for six months ended June 30, after taxes, of \$423,350, against \$365,049 for the same period in 1941.

**BENDIX AVIATION Corp.** announces earnings for nine months ended June 30, 1942, as \$11,035,022, after making provision for Federal income and excess profits taxes in the amount of \$66,232,792.

**AIRCRAFT ACCESSORIES CORP., Burbank, Cal. and subsidiary, Aircraft Accessories Corp. of Missouri,** at the year ended April 30, had consolidated net profit of \$265,662, equal to 44c for each of 526,143 shares of common stock, opposed to consolidated net loss of \$128,682 in the same period of 1941. Consolidated current assets were \$2,037,452 and current liabilities \$1,810,775, against \$772,488 and \$971,441, respectively, at the same time in 1941.

**SPERRY CORP. and U. S. subsidiaries,** after provision for renegotiation of profits on government contracts, Federal taxes and reserves for post-war contingencies, had net income for the six months ended June 30 of \$2,394,237, equal to \$1.19 on each of 2,015,565 shares of capital stock, contrasted to net income of \$3,477,433, or \$1.72 per share in the previous year. Provision for this year's pending taxes totaled \$11,380,254.

## Wright Issues Guide

A guide to U. S. and British warplanes powered by Wright engines has been prepared by Wright Aeronautical Corp., Paterson, N. J. Listings are made as to "manufacturer's or military designations, function and power." Showing only the latest models in current use, the guide has been designed as "a reference to check identification, engines and total horsepower per plane, as well as American and British model numbers and names."

## Professional Directory

**BOMB PROTECTION**  
Industrial Camouflage  
Structural Safeguards  
Surveys—Design—Execution  
**RALPH M. KENDALL**  
Consulting Engineer  
14453 38 Avenue Flushing, N. Y.

## On the Labor Front

### ALUMINUM COMPANY OF AMERICA

Strike was voted by employees of seven plants. Action was held up pending further negotiations. However, workers in two of the plants declared they will not obey any order for work stoppage on war contracts. Employees of one plant went out for a short, unauthorized "grievance strike."

### AMERICAN PROPELLER CORP., Toledo, O.

An election among two groups of employees was directed by NLRB.

### EDWARD G. BUDD MANUFACTURING CO., Detroit, Mich., plant.

A work stoppage which threatened to tie up war production was ended by mutual agreement.

### BUICK ALUMINUM FOUNDRY.

Strike ended after night-long negotiations thus removing a threat to heavy bomber production in plants depending upon the foundry for parts.

### CHRYSLER CORP. OF CANADA, Windsor, Ont.

Company has signed a work and wage agreement with UAW-CIO.

### CORNELL DUBILIZER CONDENSER CORP., S. Plainfield, N. J.

Members of the International Brotherhood of Electrical Workers-AFL reconsidered strike plans when the Army indicated that it would take over the plant in case of further work stoppages.

### CURTIS-WRIGHT CORP.

NLRB certified Associated Welders of Western New York as bargaining agent for welders and IAM-AFL as agent of production and maintenance employees at Tonawanda and Cheektowago, New York, plants.

### FAIRCHILD AVIATION CORP., Jamaica, N. Y.

An election among service employees was recommended by NLRB.

### FORD MOTOR CO., DETROIT, MICH.

Representatives of UAW-CIO members in 53 company plants approved all sections of the new work contract prepared through negotiation, except the clauses concerning wages and other economic issues now before NWLB.

### GENERAL MOTORS CORP.

In a general hearing before the Board on the NWLB panel recommendation Walter Reuther, vice-president of UAW-CIO, claimed that 5.9c an hour increase would be required to meet the increased cost of living formula under the "Little Steel" stabilization policy. C. E. Wilson protested against maintenance of membership clause.

### LAMSON & SESSIONS CO., Cleveland, O.

A UAW-CIO wage dispute was certified to NWLB.

### LANDIS MACHINE CO., Waynesboro, Pa.

Controversy with IAM-AFL employees certified to NWLB.

### MONSANTO CHEMICAL CO., Everett, Mass.

NWLB "cracked down" on Chemical Workers Union-AFL by denying union maintenance of membership protection, because of violation of its "no-strike" pledge in July.

### NORMA-HOFFMANN BEARING CORP., Stamford, Conn.

Workers were granted a 7½c raise by NWLB; 6c in accordance with the "Little Steel" formula, and 1½c "to remove the glaring wage inequalities found to exist within the plant." Board's opinion pointed out that the decision did not act to remove a 10% differential between the plant and the bearings industry as a whole.

### PLYWOOD & DOOR MANUFACTURERS' INDUSTRIAL COMMITTEE, Hoquiam, Wash.

Wage dispute between 13 plywood companies and International Brotherhood of Woodworkers-CIO was certified to NWLB.

### REYNOLDS METALS CO., INC., Louisville, Ky.

Workers were refused a general wage increase in a "Little Steel" decision by NWLB. However, the Board adopted the panel recommendation increasing wage minimum from 60c to 62c an hour for men and from 55c to 57c for women as well as bonuses of 3c an hour for second shift and 5c for third.

### SIMMONDS AEROCOSSORIES, INC., N. Y. C.

NLRB has certified UAW-CIO and Accessories Independent Association as agents for two groups of employees.

### TIMKEN ROLLER BEARING CO., Canton, O., plant.

Dispute over wages with USW-CIO was certified to NWLB.

### TOOL & DIE MANUFACTURERS' ASSOCIATION, Detroit, Mich.

A wage stabilization conference was scheduled indefinitely under auspices of WPB, NWLB and WMC with Paul Porter of WPB as presiding officer. Approximately 700 shops and three unions were to be represented: UAW-CIO, Society of Tool & Die Craftsmen, independent; and the Mechanics Educational Society of America. "Following the conclusion, NWLB will make a final determination of the wage cases before it, which cover GMC, Ford, Chrysler, and the Automotive Tool & Die Association."

### WASHINGTON METAL TRADES, INC., Seattle, Wash.

NWLB denied workers a general wage increase, but ordered pay adjustments affecting some workers to equalize wages with those in nearby shipyards.

### WRIGHT AERONAUTICAL CORP., Paterson, N. J.

Workers at Fair Lawn Foundry struck for several days over a job classification project. Company officials, warned that the strike might spread to other Wright plants, refused to negotiate until the men returned to work. In this they were supported by the Labor Department conciliator. Upon ending of the work stoppage, coalition committees were formed to act as grievance committees, with adjustments arranged to be retroactive to that date. Later, according to union leaders, the company accepted a wage plan providing for increases.

### SEALED POWER CORP., Muskegon, Mich.

An employee arrested for destroying five stacks of aircraft engine piston rings claimed his action was due to a rage over union limitation on the number of units a workman could produce daily. Company spokesman concurred concerning the practice stating company for "over a year" had tried to eliminate the restriction.

### UNITED STATES GAUGE CO., Sellersville, Pa.

A wage dispute with three AFL unions is certified to NWLB.

### VICKERS, INC., Detroit, Mich.

NLRB has dismissed the petition filed by UAW-CIO.



WE'RE KEEPING **Tough** COMPANY

... and we're PROUD of it!



H. M. S. ILLUSTRIOUS  
SELECTS ELECTRONIC



**Designed for Operating Portable  
Test Equipment in the Field**

Input Voltage: 12 Volts  
Output: 110 AC, 180 Cycles  
Wattage Capacity: 30 Watts  
Size: 4" x 4" x 6"  
Weight: 3 lbs.  
Efficiency: 75%



**Tough Problem—But Electronic  
Licked It!**

Input: 12 Volts DC or 110 Volts AC.  
Output: 2000 Volts DC at 200 Ma.  
450 Volts DC at 70 Ma.  
+250 Volts at 30 Ma.  
-250 Volts at 25 Ma.  
10 Volts AC 7 Amperes  
Approximate output wattage, 500 watts  
Weight: 56 lbs. Size: 19" x 11" x 8"  
Efficiency: 65%  
Regulation: 13%  
Designed for continuous operation at  
full load

IN RETURNING TO ACTION, after recent refitting, *H.M.S. Illustrious* relies on newly installed ELECTRONIC equipment . . . not only for herself but for the planes that fly from her decks. Tough company? Yes! *Magnificently so!* But only *one* of many rugged military assignments for Electronic: Tanks! Walkie-Talkies! Mobile Amplifiers! Jeeps! P-T Boats! *Not a "softie" in the lot!*

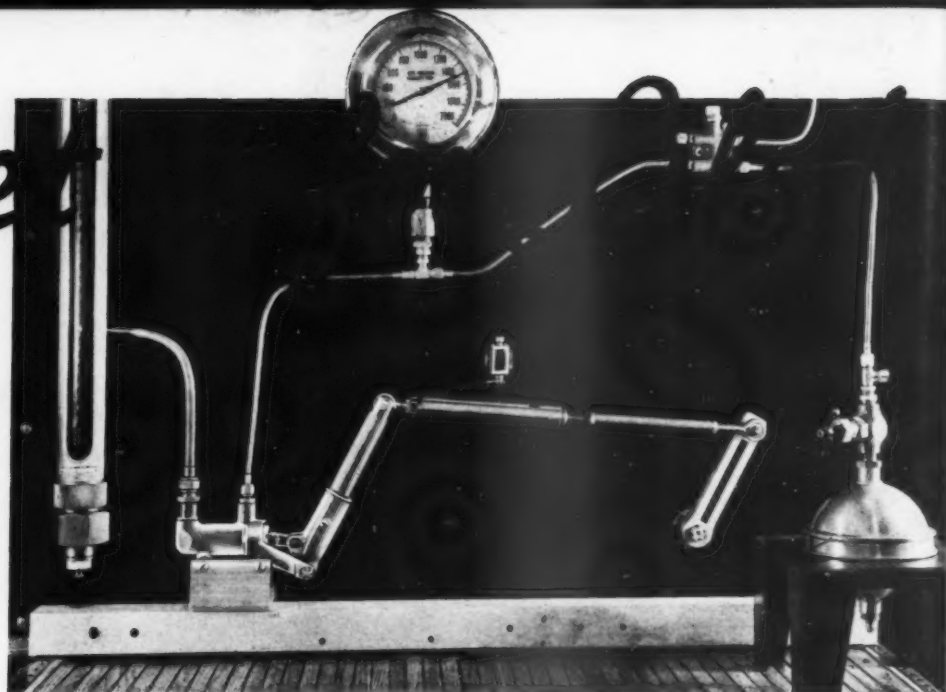
BECAUSE IT TAKES TOUGH PRODUCTS to keep tough company, Electronic is justly proud of her wartime role. And tomorrow Electronic Power Supplies will return to peacetime pursuits . . . at your service . . . *tougher and better* in every way because of their combat experience. Until then . . . CARRY ON!

*Electronic*

LABORATORIES, INC.



# Forget



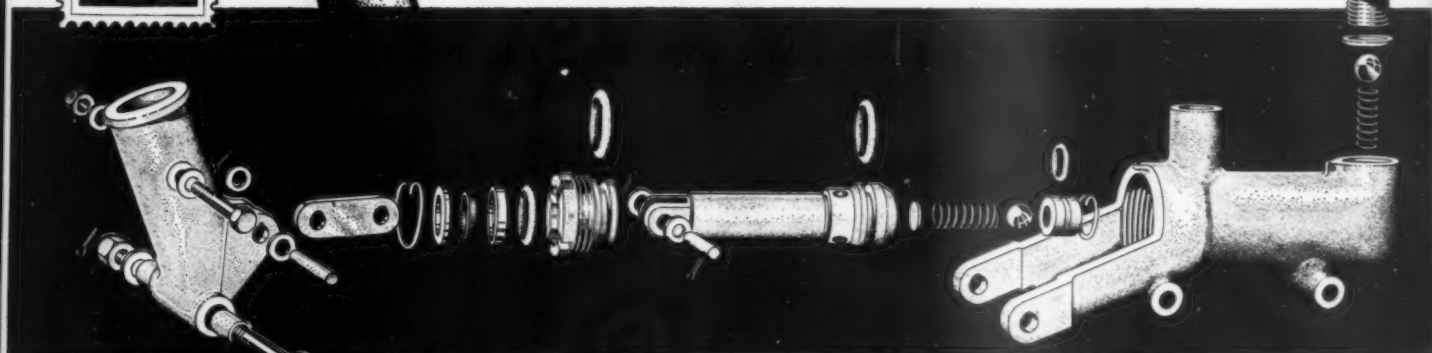
**Over 200,000 Cycles @ 1500 psi. — 60 cycles per minute.  
Double the AN Specification with no change of seals, no sign of wear.**

Laboratory tests plus service records of thousands of units now flying with United Nations' Air Forces show a life expectancy of from 16 to 20 times that of the airplane itself. Such proven dependability allows us to say: *'Forget it for Life!'* ADEL'S new emergency hand pump for hydraulic systems offers 26% less weight and 7 fewer machined parts than previous models—comparisons which similarly apply to competitive equipment.

Sceptics who thought the *Design Simplicity* of the original unit too advanced when it was

introduced early last year and who were subsequently astonished when orders for thousands of pumps were received may again be amazed to learn that even more orders are now being placed for the new, improved design.

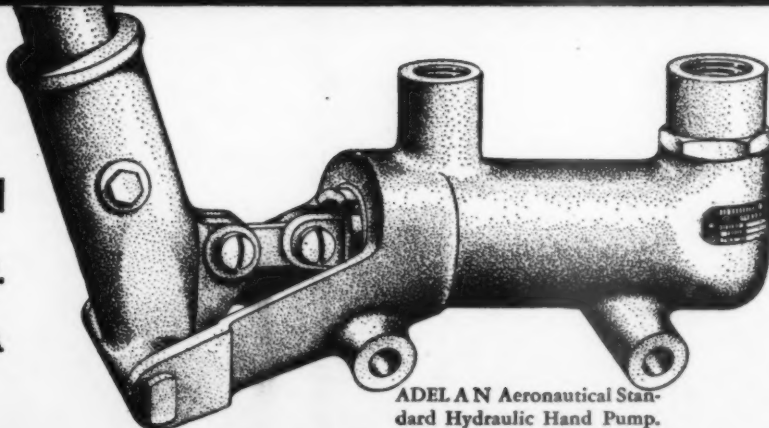
Standardization plus precision manufacturing methods permit interchangeability, low first cost, minimum maintenance and maximum performance. Complete information only to qualified engineers connected with recognized armament industries.



# ADEL

**PRECISION PRODUCTS CORP.**

**BURBANK, CALIFORNIA**



**ADEL AN Aeronautical Standard Hydraulic Hand Pump.**

**ENGINEERING  
OFFICES—**

**Dallas, Tex.**

**Detroit, Mich.**

**Huntington, W. Va.**

**Hagerstown, Md.**

**Toronto, Ont.**